



Atty. Docket No. PLA13 P-300

CERTIFICATE OF MAILING

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December 29, 2003  
Date

Melanie S. Jernberg  
Melanie S. Jernberg

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Art Unit : 2834  
Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Filing Date : October 17, 2001  
Confirmation No. : 5580  
For : WIND POWERED GENERATOR

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

TRANSMITTAL OF APPEAL BRIEF  
(PATENT APPLICATION - 37 CFR §1.192)

1. Transmitted herewith, in triplicate, is the APPELLANT'S BRIEF in this application, with respect to the Notice of Appeal filed on September 29, 2003.

2. STATUS OF APPLICANTS

This application is on behalf of:

\_\_\_ other than a small entity.

X a small entity.

3. FEE FOR FILING APPEAL BRIEF

Pursuant to 37 CFR §1.17(c), the fee for filing the Appeal Brief is:

X small entity \$165.00

\_\_\_ other than a small entity \$330.00

Appeal Brief fee due: \$165.00

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 2

4. **EXTENSION OF TERM**

The proceedings herein are for a patent application and the provisions of 37 CFR §1.136 apply.

*(complete (a) or (b), as applicable)*

- (a)   X   Applicant petitions for an extension of time under 37 CFR §1.136:

<u>Extension (months)</u>	<u>Fee for other than small entity</u>	<u>Fee for small entity</u>
<u>  X  </u> one month	\$110.00	\$55.00
<u>      </u> two months	\$420.00	\$210.00
<u>      </u> three months	\$950.00	\$475.00
<u>      </u> four months	\$1480.00	\$740.00

FEE: \$55.00

If an additional extension of time is required, please consider this a petition therefor.

*(check and complete the next item, if applicable)*

       An extension for        months has already been secured, and the fee paid therefor of \$        is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request: \$

*or*

- (b)        Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

5. **TOTAL FEE DUE**

The total fee due is:

Appeal Brief fee: \$165.00  
Extension fee (if any) \$55.00  
TOTAL FEE DUE: \$220.00

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 3

**6. FEE PAYMENT**

  x   Attached is a check in the sum of \$220.00.

       Charge Account No. 16 2463 the sum of \$       .

A duplicate of this transmittal is attached.

**7. FEE DEFICIENCY**

  X   If any additional extension and/or fee is required, this is a request therefor  
and to charge Account No. 16 2463.

*and/or*

  X   If any additional fee for claims is required, charge Account No.  
16 2463.

Respectfully submitted,

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12/29/03  
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APPELLANT'S BRIEF (37 CFR §1.192)

This brief is in furtherance of the Notice of Appeal, filed in this case on September 29, 2003.

The fees required under §1.17(f), and any required petition for extension of time for filing this brief and fees therefor, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief is transmitted in triplicate. (37 CFR §1.192(a)).

This brief contains these items under the following headings, and in the order set forth below (37 CFR §1.192(c)):

- I. Real Party in Interest
- II. Related Appeals and Interferences
- III. Status of Claims
- IV. Status of Amendments
- V. Summary of Invention
- VI. Issues
- VII. Grouping of Claims
- VIII. Arguments
- IX. Conclusion

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 5

Appendix of Claims Involved in the Appeal

Appendix of Cited Art

The final page of this brief bears the attorney's signature.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 6

## TABLE OF CONTENTS

I.	Real Party in Interest . . . . .	8
II.	Related Appeals and Interferences . . . . .	8
III.	Status of Claims . . . . .	8
IV.	Status of Amendments . . . . .	8
V.	Summary of the Invention . . . . .	8
	Va. Cited Prior Art . . . . .	15
	Vb. The Examiner's Rejections . . . . .	17
VI.	Issues . . . . .	18
VII.	Grouping of Claims . . . . .	20
VIII.	Arguments . . . . .	21
IX.	Conclusion . . . . .	64

Appendix of Claims

Appendix of Cited Art

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 7

## TABLE OF AUTHORITY

### Case Authority

#### *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.,*

221 USPQ 481, 485 (Fed. Cir. 1984) . . . . . 21

#### *In re Sun,*

31 U.S.P.Q.2d 1451, 1453 (Fed. Cir. 1993) . . . . . 21

#### *In re Rijchaert,*

28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993) . . . . . 22, 24

#### *Ex parte Levy,*

17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. and Inter. 1990) . . . . . 22, 24

#### *In re Fine,*

5 U.S.P.Q.2d 1586 (Fed. Cir. 1988) . . . . . 26, 29, 32

#### *In re Merck & Co., Inc.,*

231 U.S.P.Q. 375 (Fed. Cir. 1986) . . . . . 26, 29, 32

#### *In re Royka,*

180 U.S.P.Q. 550 (C.C.P.A. 1974) . . . . . 26, 29, 32

#### *In re Wesslau,*

353 F.2d 238, 241, 147 USPQ 391, 393 (CCPA 1965) . . . . . 27

#### *In re Mercer,*

515 F.2d 1161, 1165-66, 185 USPQ 774,778 (CCPA 1975) . . . . . 27

#### *Ex parte Chicago Rawhide Mfg. Co.,*

223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). . . . . 34

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 8

**I. Real Party in Interest**

The named applicant is the party in interest in this application.

**II. Related Appeals and Interferences**

There are no related appeals or interferences pending during this application.

**III. Status of Claims**

Claims 1-37 and 39-70 are pending in this application. Claims 1-8 are allowed. Claims 11-14, 20-23, 46-49 and 58-70 have been indicated as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. As discussed below, an Amendment After Appeal is being filed contemporaneously with this Appeal Brief wherein claims 11, 20, 46 and 58 were rewritten into independent form. Claims 12-14 depend from claim 11, claims 21-23 depend from claim 20, claims 47-49 depend from claim 46 and claims 59-70 depend from claim 58. Accordingly, claims 1-8, 11-14, 20-23, 46-49 and 58-70 are now believed to be allowed. Claims 9, 10, 15-19, 24-37, 39-45 and 50-57 are the subject of this appeal.

**IV. Status of Amendments**

An Amendment After Appeal is being filed contemporaneously with this Appeal Brief. The Amendment After Appeal rewrites claims 11, 20, 46 and 58 into independent form as these claims have been indicated as being in condition for allowance if rewritten into independent form. A typo has also been corrected in these claims. The Amendment After Appeal also cancels claims 38, addresses an objection to the drawings and specification set forth in the final Office Action, and amends claim 34 to provide for consistent claim language.

**V. Summary of the Invention**

As described in the specification portion of the application (pages 1-17), and illustrated in the related figures (Figs. 1-15), the invention recited in the finally rejected claims relates to a wind powered generator.



Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 9

A first aspect of the present invention is to provide a portable wind powered generator tower 14 for supporting a wind powered generator 12 comprising a lower tower section 20 including a first vertical column 26, a second vertical column 28 and a third vertical column 30. The lower tower 20 further includes at least three cross braces 32, 34, with two of the cross braces 32 being connected to each of the first vertical column 26, the second vertical column 28 and the third vertical column 30. An upper tower section 22 includes a first upper column 38, a second upper column 40 and a third upper column 42, with the first upper column 38 and the second upper column 40 being substantially parallel and the third upper column 42 converging towards the first upper column 38 and the second upper column 40. An elevator 24 is configured to be connected to a wind powered generator 12 to raise and lower the wind powered generator 12 from the lower tower section 20 to the upper tower section 22. The lower tower section 20 is configured to be connected to the upper tower section 22 by connecting a top of the first vertical column 26 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the first upper column 38 of the upper tower section 22, connecting a top of the second vertical column 28 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the second upper column 40 of the upper tower section 22, and connecting a top of the third vertical column 30 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the third upper column 42 of the upper tower section 22. The elevator 24 is fully assembled and ready to raise and lower the wind powered generator 12 when the lower tower section 20 is connected to the upper tower section 22.

Another aspect of the present invention is to provide a wind powered generator support assembly for supporting a wind powered generator 12 comprising a tower 14 and a vertical elevator 24 on the tower 14. The elevator 24 includes a track 44 and a carriage 46 configured to move along the track 44. The carriage 46 includes a pivot ring 50 configured to accept the wind powered generator 12 therein for allowing the wind powered generator 12 to rotate about the carriage 46. The vertical elevator 24 is configured to vertically lift the wind powered generator 12 with the carriage 46 to position the wind powered generator 12 at a top of the tower 14.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 10

A further aspect of the present invention is to provide a wind powered generator support assembly for supporting a wind powered generator 12 comprising a tower 14 with a vertical elevator 24 on the tower. The elevator 24 includes a track 44 and a carriage 46 configured to move along the track 44, the carriage 46 including a pivot ring 50 configured to accept the wind powered generator 12 therein for allowing the wind powered generator 12 to rotate about the carriage 46. The vertical elevator 24 is configured to vertically lift the wind powered generator 12 with the carriage 46 to position the wind powered generator 12 at a top of the tower 14. The tower 14 comprises a lower tower section 20 and an upper tower section 22, the lower tower section 20 including a first vertical column 26, a second vertical column 28 and a third vertical column 30, the lower tower 20 further including at least three cross braces 32, 34, two of the cross braces 32, 34 being connected to each of the first vertical column 26, the second vertical column 28 and the third vertical column 30. The upper tower section 22 includes a first upper column 38, a second upper column 40 and a third upper column 42, with the first upper column 38 and the second upper column 40 being substantially parallel and the third upper column 42 converging towards the first upper column 38 and the second upper column 40. The lower tower section 20 is configured to be connected to the upper tower section 22 by connecting a top of the first vertical column 26 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the first upper column 38 of the upper tower section 22, connecting a top of the second vertical column 28 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the second upper column 40 of the upper tower section 22, and connecting a top of the third vertical column 30 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the third upper column 42 of the upper tower section 22. The track 44 is fully assembled and ready to raise and lower the wind powered generator 12 when the lower tower section 20 is connected to the upper tower section 22.

Yet another aspect of the present invention is to provide a wind powered electrical generation system 10 comprising a tower 14 including a vertical elevator 24. The vertical elevator 24 has a track 44 and a carriage 46 configured to move along the track 44 and a wind powered generator 12 configured to be connected to the carriage 46. The wind powered

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 11

generator 12 includes a plurality of airfoils 16 and an electric generator 190, wherein the wind powered generator 12 can be removably placed within the carriage 46 after the tower 14 has been erected and lifted vertically with the carriage 46 to position the wind powered generator 12 at a top of the tower 14. The wind powered generator 12 can be removed from within the carriage 46 after the carriage 46 has been lowered.

Another aspect of the present invention is to provide a wind powered electrical generation system comprising a tower 14 including a vertical elevator 24, the vertical elevator 24 having a track 44 and a carriage 46 configured to move along the track 44. A wind powered generator 12 is configured to be connected to the carriage 46, with the wind powered generator including a plurality of airfoils 16 and an electric generator 190. The wind powered generator 12 can be removably placed within the carriage 46 after the tower 14 has been erected and lifted vertically with the carriage 46 to position the wind powered generator 12 at a top of the tower 14, and the wind powered generator 12 can be removed from within the carriage 46 after the carriage 46 has been lowered. The tower 14 comprises a lower tower section 20 and an upper tower section 22, the lower tower section 20 including a first vertical column 26, a second vertical column 28 and a third vertical column 30, the lower tower 20 further including at least three cross braces 32, 34, two of the cross braces 32, 34 being connected to each of the first vertical column 26, the second vertical column 28 and the third vertical column 30. The upper tower section 22 includes a first upper column 38, a second upper column 40 and a third upper column 42, with the first upper column 38 and the second upper column 40 being substantially parallel and the third upper column 42 converging towards the first upper column 38 and the second upper column 40. The lower tower section 20 is configured to be connected to the upper tower section 22 by connecting a top of the first vertical column 26 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the first upper column 38 of the upper tower section 22, connecting a top of the second vertical column 28 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the second upper column 40 of the upper tower section 22, and connecting a top of the third vertical column 30 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the third upper column 42 of the upper tower section 22. The

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 12

track 44 is fully assembled and ready to raise and lower the wind powered generator 12 when the lower tower section 20 is connected to the upper tower section 22.

In yet another aspect of the present invention, a wind powered generator 12 is provided. The wind powered generator 12 comprises a housing 128, a rod 130 configured to rotate within the housing 128 and at least two spars 98 connected to a hub of the rod 130 and extending radially therefrom. An airfoil 16 is connected to each of the spars 98 at a location distal the rod 130, the airfoils 16 being configured to pivot about the spars 98 and to slide longitudinally along the spars 98. The airfoils 16 are biased towards a first end of the spars 98 connected to the hub 132, each spar 98 including a cam member 158 adjacent a second end of the spar 98 opposite to the hub 132. Each airfoil 16 includes a cam surface 182 configured to engage the cam member 158 on the spar 98, wherein the cam member 158 and the cam surface 182 are configured to engage to thereby rotate the airfoils 16 relative to the spars 98 as the airfoils 16 move along the spars 98 towards the second end of the spars 98.

Another aspect of the present invention is to provide a wind powered generator 12 comprising a housing 128 and a rod 130 configured to rotate within the housing 128. At least six spars 98 are connected to the rod 130 and extend radially therefrom. An airfoil 16 is connected to each of the spars 98 at a location distal the rod 130. A generator 190 is located upwind of the spars 98 and interconnected to the rod 130, wherein the spars 98 and the rod 130 will rotate as wind passes the airfoils 16, thereby powering the generator 190.

Yet another aspect of the invention is to provide a wind powered electrical generation system 10 comprising a tower 14 including an elevator 24 having a carriage 46. The elevator 24 is configured to move the carriage 46 between a bottom and a top of the tower 14. A first member 102 is rotatably connected to the carriage 46. The first member 102 has an axis of rotation substantially parallel to the direction of movement of the carriage 46 and a second member 96 connected to the first member 102. The second member 96 has a first end and a second end. A hub assembly 132 is connected to the first end of the second member 96 and the hub assembly 132 includes a plurality of spars 98. An airfoil 16 is connected to each spar 98 and a generator 190 connected to the second end of the second member 96. The spars 98

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 13

and the second member 96 will rotate as wind passes the airfoils 16, thereby powering the generator 190.

A further aspect of the present invention is to provide a wind powered electrical generation system comprising a tower 14 including an elevator 24 having a carriage 46, the elevator 24 being configured to move the carriage 46 between a bottom and a top of the tower 14. A first member 102 is rotatably connected to the carriage 46, the first member 102 having an axis of rotation substantially parallel to the direction of movement of the carriage 46. A second member 96 is connected to the first member 102, with the second member 96 having a first end and a second end. A hub assembly 132 is connected to the first end of the second member 96, with the hub assembly 132 including a plurality of spars 90. An airfoil 16 is connected to each spar 96. A generator 190 is connected to the second end of the second member 96. The spars 98 and the second member will rotate as wind passes the airfoils 16, thereby powering the generator 190. The tower 14 comprises a lower tower section 20 and an upper tower section 22, the lower tower section 20 including a first vertical column 26, a second vertical column 28 and a third vertical column 30, the lower tower 20 further including at least three cross braces 32, 34; two of the cross braces 32, 34 being connected to each of the first vertical column 26, the second vertical column 28 and the third vertical column 30. The upper tower section 22 includes a first upper column 38, a second upper column 40 and a third upper column 42, with the first upper column 38 and the second upper column 40 being substantially parallel and the third upper column 42 converging towards the first upper column 38 and the second upper column 40. The lower tower section 20 is configured to be connected to the upper tower section 22 by connecting a top of the first vertical column 26 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the first upper column 38 of the upper tower section 22, connecting a top of the second vertical column 28 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the second upper column 40 of the upper tower section 22, and connecting a top of the third vertical column 30 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the third upper column 42 of the upper tower section 22. The track 44 is fully assembled

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 14

and ready to raise and lower the wind powered generator 12 when the lower tower section 20 is connected to the upper tower section 22.

Yet another aspect of the present invention is to provide a portable wind powered generation system 10 comprising a tower 14 having an upper tower section 22 and a lower tower section 20, the upper tower section 22 and the lower tower section 20 being removably connected. The system includes a wind powered generator 12 and an elevator 24 connected to the tower 14, the elevator 24 being able to move between the lower tower section 20 and the upper tower section 22 of the tower 14. The wind powered generator 12 is configured to be connected to the elevator 24 to raise the wind powered generator 12 from the lower tower section 20 to the upper tower section 22. The wind powered generator 12 can be unconnected from the elevator 24 and the upper tower section 22 can be unconnected from the lower tower section 20, thereby allowing the portable wind powered generator assembly 10 to be easily transported and erected.

Yet another aspect of the present invention is to provide a portable wind powered generation system 10 comprising a tower 14 having an upper tower section 22 and a lower tower section 20, the upper tower section 22 and the lower tower section 20 being removably connected. The system includes a wind powered generator 12 and an elevator 24 connected to the tower 14, the elevator 24 being able to move between the lower tower section 20 and the upper tower section 22 of the tower 14. The wind powered generator 12 is configured to be connected to the elevator 24 to raise the wind powered generator 12 from the lower tower section 20 to the upper tower section 22. The wind powered generator 12 can be unconnected from the elevator 24 and the upper tower section 22 can be unconnected from the lower tower section 20, thereby allowing the portable wind powered generator assembly 10 to be easily transported and erected. The tower 14 comprises a lower tower section 20 and an upper tower section 22, the lower tower section 20 including a first vertical column 26, a second vertical column 28 and a third vertical column 30, the lower tower 20 further including at least three cross braces 32, 34, two of the cross braces 32, 34 being connected to each of the first vertical column 26, the second vertical column 28 and the third vertical column 30. The upper tower section 22 includes a first upper column 38, a second upper column 40 and a third upper

column 42, with the first upper column 38 and the second upper column 40 being substantially parallel and the third upper column 42 converging towards the first upper column 38 and the second upper column 40. The lower tower section 20 is configured to be connected to the upper tower section 22 by connecting a top of the first vertical column 26 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the first upper column 38 of the upper tower section 22, connecting a top of the second vertical column 28 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the second upper column 40 of the upper tower section 22, and connecting a top of the third vertical column 30 of the lower tower section 20 directly below the upper tower section 22 to a bottom of the third upper column 42 of the upper tower section 22. The track 44 is fully assembled and ready to raise and lower the wind powered generator 12 when the lower tower section 20 is connected to the upper tower section 22.

#### **Va. Cited Prior Art**

##### U.S. Patent No. 4,311,434 to Abe

The Abe 4,311,434 patent discloses a wind turbine. The wind turbine (Fig. 1) as disclosed in the Abe '434 patent includes a tower 1 having a seat 3 at an upper end thereof for accepting a nacelle 2 on a base 9. The tower 1 includes a mount 12 for raising and lowering the base 9. As illustrated in Figs. 1 and 2, the base 9 can slide on rails 11 on the seat 3 or the mount 12. Once the mount 12 is raised to the top of the tower 1, the base 9, can be slid along the rails 11 onto the seat 3. The nacelle 2 is connected to a supporting member 6 and is adapted to rotate about the base 9 with rotation of the supporting member 6. As illustrated in Fig. 2, the supporting member 6 can be fixed in position relative to the base 9 via a motor 21, a worm 20, a worm gear 19 and a clutch 18 selectively fixed relative to a shaft 10 connected to the base 9.

##### U.S. Patent No. 6,239,507 to Douthit

The Douthit 6,239,507 patent discloses a wind powered machine. The wind powered machine 10 (Fig. 1) includes a supporting frame 12 having a turntable 16 thereon. A wind-

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 16

powered rotor 18, an infeed funnel 20 adapted to channel wind to rotor 18, a rear wind deflector 22 and a positioning fin 26 operate to turn the rotor 18 and funnel 20 to keep the funnel directed into the wind. The wind powered machine 10 includes an electrical rotator connector 106 having a plurality of concentric annular rings, which are mounted for rotation relative to each other (see Figs. 11 and 12). The electrical rotator connector 106 includes a first annular ring 128 secured to the supporting frame 12 and having a pair of wipers 130 and 132 connected thereto. A first annular conductor ring 108 engages the wiper 130 and a second annular conductor ring 142 engages the wiper 132. Electrical connectors 146, 148 are secured to conductor rings 138, 142, respectively, and are electrically connected to an alternator 102. As the alternator is driven by the wind powered rotor, electricity may pass through connectors 146, 148 to conductor rings 138, 140, respectively, and then through wipers 130, 132 to conductors 134, 136 to transmit electrical energy to a storage battery 108.

U.S. Patent No. 2,052,454 to Ellwood, 2d., et al.

The Ellwood, 2d., et al. 2,052,454 patent discloses a variable pitch propeller. The variable pitch propeller includes a shaft A having a blade-carrying ring 10 at the end thereof. The shaft A also has a synchronizing disk 13 adjacent the blade-carrying ring 10. The disk 13 includes three slots 14. Pitch-changing shafts 17 extend from the ring 10 and include grooved inner ends 16 for connecting with coupling yokes 15 fitted in the slots 14 of the disk 13. The pitch changing shaft 17 has hubs 18 which are rotatably and slidably fitted in tubular stems 19 fixed to the ring 10. A blade 21 includes an outer wider tip end 23 coupled by coupling 25 with the outer end of the shaft 17. The stem 19 is fixed in a bearing 20 connected to the ring 10 by a screw 31 having a reduced inner end 32 loosely engaged in a spiral channel or groove 33 formed in the hub 18 of the shaft 17 (see Fig. 5). The hub 18 slides radially to produce the turning of the hub with the resulting adjustment of the blades 21 to vary the pitch of the blades. As wind increases or decreases against the blades 21, the pitch or angular disposition of the blades 21 will be automatically changed by the turning of the hubs 18 on the shaft 17.

The shafts 17 are moved axially within the stem 19 by movement of the slotted disk 13. The disk 13 has a series of coiled tension springs 34, which are also connected to the ring 10 and



Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 17

functions return the blades 21 to a neutral position as shown in Figs. 1 and 2 of the drawings, where the yokes 15 have traveled in slots 14 to the inner end of the slots 14. Therefore, the disk 13 is rotated in a direction by the tension of the springs 34. When the velocity of the wind increases and strikes the blades 21, a momentary increase in proportion of the propeller occurs. Because the increased centrifugal force causes the weighted tips 23 of the blade to move outwardly, the blade 21 pulls on the shaft 17, thereby rotating the disk 13 against the resistance of the springs 34. The outward movement of the shaft 17 through the hubs 18 causes the hubs 18 to engage the pin end 32 of the screws 31 to automatically affect a changing of the pitch of the blades 21.

#### U.S. Patent No. 5,584,655 to Deering

The Deering 5,584,655 patent discloses a rotor device and control for wind turbine. The wind turbine includes a pair of airfoil-shaped blades 104a, 104b that rotate about an axis 102. The rotation of the blades 104a, 104b about the rotational axis 102 is transferred, via shaft 202, to an electrical generator 204. The blades 104a, 104b can be maintained in a desired position by rotating a housing 106 about a vertical axis 206. As illustrated in Fig. 3, the wind turbine is several times larger than a human.

#### U.S. Patent No. 5,244,346 to Fergusson

The Fergusson 5,244,346 patent discloses a portable wind machine. As illustrated in Figs. 6-10, the wind machine 201 includes an adjustable height support 205. The adjustable height support 205 comprises an upper section 225 mounted on a lower section 223 for telescoping vertical movement between a lower or retracted position (Fig. 6) and an upper or extended position (Fig. 7). As illustrated in Fig. 6, the upper section 225 includes a periphery that is acceptable within an inside of the lower section 223.

#### **Vb. The Examiner's Rejection**

Claims 9, 10, 15, 17-19, 24 and 26 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,311,434 to Abe.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 18

Claims 16 and 25 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 6,239,507 to Douthit.

Claims 27 and 28 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 2,052,454 to Ellwood, 2d., et al.

Claim 29 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,311,434 to Abe.

Claims 30, 44, 45, 50 and 52 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,584,655 to Deering.

Claims 31-33 and 53-56 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,584,655 to Deering and U.S. Patent No. 2,052,454 to Ellwood, 2d., et al.

Claims 34, 35 and 39-41 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 2,052,454 to Ellwood, 2d., et al.

Claims 36, 37, 42 and 43 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 2,052,454 to Ellwood, 2d., et al. in view of U.S. Patent No. 5,584,655 to Deering.

Claim 51 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,584,655 to Deering and U.S. Patent No. 6,239,507 to Douthit.

Claim 57 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,244,346 to Fergusson.

## **VI. Issues**

The issues are:

Issue 1: Whether claims 9, 10, 15, 17-19, 24 and 26 are anticipated by U.S. Patent No. 4,311,434 to Abe?

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 19

Issue 2: Whether claims 16 and 25 are unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 6,239,507 to Douthit?

Issue 3: Whether claims 27 and 28 are unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 2,052,454 to Ellwood, 2d., et al?

Issue 4: Whether claim 29 is unpatentable over U.S. Patent No. 4,311,434 to Abe?

Issue 5: Whether claims 30, 44, 45, 50 and 52 are unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,584,655 to Deering?

Issue 6: Whether claims 31-33 and 53-56 are unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,584,655 to Deering and U.S. Patent No. 2,052,454 to Ellwood, 2d., et al?

Issue 7: Whether claims 34, 35 and 39-41 are unpatentable over U.S. Patent No. 2,052,454 to Ellwood, 2d., et al?

Issue 8: Whether claims 36, 37, 42 and 43 are unpatentable over U.S. Patent No. 2,052,454 to Ellwood, 2d. et al. in view of U.S. Patent No. 5,584,655 to Deering?

Issue 9: Whether claim 51 is unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,584,655 to Deering and U.S. Patent No. 6,239,507 to Douthit?

Issue 10: Whether claim 57 is unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,244,346 to Fergusson?

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 20

## **VII. Grouping of Claims**

The claims are subdivided into the following groups for this appeal. The claims of each subdivided group are believed to be separately patentable since they define inventions of patentable different scopes and subject matter, as shown by the reasons given in the arguments below.

Claims 9, 15 and 17 stand or fall together (claim 9 is an independent claim).

Claim 10 stands or falls alone.

Claim 16 stands or falls alone.

Claims 18, 26 and 27 stand or fall together (claim 18 is an independent claim).

Claim 19 stands or falls alone.

Claim 24 stands or falls alone.

Claim 25 stands or falls alone.

Claim 28 stands or falls alone.

Claim 29 stands or falls alone.

Claim 30 stands or falls alone.

Claims 31 and 32 stand or fall together.

Claim 33 stands or falls alone.

Claim 34 stands or falls alone (claim 34 is an independent claim).

Claim 35 stands or falls alone.

Claims 36 and 37 stand or fall together.

Claim 39 stands or falls alone (claim 39 is an independent claim).

Claim 40 stands or falls alone.

Claim 41 stands or falls alone.

Claims 42 and 43 stand or fall together.

Claims 44 and 52 stand or fall together (claim 44 is an independent claim).

Claim 45 stands or falls alone.

Claim 50 stands or falls alone.

Claim 51 stands or falls alone.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 21

Claim 53 stands or falls alone.

Claims 54 and 55 stand or fall together.

Claim 56 stands or falls alone.

Claim 57 stands or falls alone (claim 57 is an independent claim).

## VIII. Arguments

### Issue 1

Whether claims 9, 10, 15, 17-19, 24 and 26 are anticipated by U.S. Patent No. 4,311,434 to Abe?

### Argument

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*" *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984) (emphasis added). In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of anticipation based upon the prior art. *In re Sun*, 31 U.S.P.Q.2d 1451, 1453 (Fed. Cir. 1993) (unpublished). The Examiner has not established a prima facie case of anticipation to reject claims 9, 10, 15, 17-19, 24 and 26.

### Discussion

Claim 9 defines a wind powered generator support assembly for supporting a wind powered generator including, among other things, a tower and a vertical elevator on the tower, with the elevator including a track and a carriage configured to move along the track, the carriage including a pivot ring configured to accept the wind powered generator therein for allowing the wind powered generator to rotate about the carriage, wherein the vertical elevator is configured to vertically lift the wind powered generator with the carriage to position the wind powered generator at a top of the tower.

The prior art of record does not disclose or suggest the above noted features of claim 9. Specifically, the Abe '434 patent does not disclose a vertical elevator on a tower including a track and a carriage configured to move along the track, with the carriage including a pivot

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 22

ring configured to accept a wind powered generator therein. The Abe '434 patent discloses a thrust bearing 17 between a base 9 and a supporting member 6. According to the final rejection of the claims, the Abe '434 patent discloses a carriage 12 and a pivot ring in the form of a roller bearing 17. Paragraph 7, Office Action mailed June 27, 2003. However, as clearly illustrated in Figs. 1 and 2 of the Abe '434 patent, the mount 12 does not include the thrust bearing 17. Notably, in Fig. 1, the thrust bearing 17 is spaced from the mount 12. Therefore, the mount 12 does not include a pivot ring as claimed in claim 9. Moreover, according to the final Office Action:

The ring is disclosed in Figure 3 that clearly shows the bearing 17 having an upper circular race and a lower circular race enclosing bearing's roller elements. One of ordinary skilled in the art would recognize the well known in the art circular or ring structure of the bearing.

Paragraph 20, Office Action mailed June 27, 2003. However, Fig. 2 of the Abe '434 patent only discloses two spaced apart bearings 17. Therefore, the Abe '434 patent does not disclose that the bearings 17 are in the form of a circle or a ring. Furthermore, since the supporting member 6 is fixed to the shaft 10 and the shaft 10 is fixed to the base 9, the thrust bearings 17 would not have to be in the form of a circle or ring. See lines 25-28 of column 3 of the Abe '434 patent. Applicant notes that "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." M.P.E.P. § 2112; *In re Rijchaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993). "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. and Inter. 1990) (emphasis original). Therefore, since the Abe '434 patent does not disclose a pivot ring and a pivot ring does not necessarily flow from the teachings of the Abe '434 patent, the Abe '434 patent does not disclose a pivot ring as claimed in claim 9. Accordingly, claim 9 is in condition for allowance.

Claims 10, 15 and 17 depend from claim 9, and since claim 9 defines unobvious patentable subject matter, claims 10, 15 and 17 define patentable subject matter. Furthermore,

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 23

in regard to claim 10, the prior art of record does not disclose or suggest a carriage including a first side groove configured to accept a first vertical strip and a second side groove configured to accept a second vertical strip. Specifically, the Abe '434 patent does not disclose that the mount 12 has any grooves or grooves accepting vertical strips. Accordingly, claims 10, 15 and 17 are in condition for allowance.

Claim 18 defines a wind powered electrical generation system including, among other things, a tower including a vertical elevator, with the vertical elevator having a track and a carriage configured to move along the track, and a wind powered generator configured to be connected to the carriage, with the wind powered generator including a plurality of air foils and an electric generator, wherein the wind powered generator can be removably placed within the carriage after the tower has been erected and lifted vertically with the carriage to position the wind powered generator at a top of the tower and the wind powered generator can be removed from within the carriage after the carriage has been lowered.

The prior art of record does not disclose or suggest the above noted features of claim 18. According to the final Office Action, the Abe '434 patent includes a carriage 12. As illustrated in Fig. 1, the carriage 12 includes a seat 15 having rails 16 thereon. The Abe '434 patent, however, does not disclose a wind powered generator that can be removably placed within a carriage and that can be removed from within a carriage. First, while the rotor and nacelle 2 may be replaced while the mount 12 is at a lower position, the structure as disclosed in the Abe '434 patent must be disassembled before anything can be removed. Therefore, the Abe '434 patent does not disclose a wind powered generator that can be removed after the mount 12 has been lowered. Furthermore, the mount 12 does not have an area for accepting anything, much less the nacelle 2, the rotor head 4 or the rotor blade 5, therein. Accordingly, the Abe '434 patent does not disclose a wind powered generator that can be removed from within the carriage after the carriage has been lowered. In other words, the Abe '434 patent does not disclose anything removed from within the mount 12. Accordingly, claim 18 is in condition for allowance.

Claims 19 and 24-33 depend from claim 18, and since claim 18 defines unobvious patentable subject matter, claims 19 and 24-33 define patentable subject matter.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 24

Furthermore, in regard to claim 19, the prior art of record does not disclose or suggest a carriage including a first side groove configured to accept a first vertical strip and a second side groove configured to accept a second vertical strip. Specifically, the Abe '434 patent does not disclose a carriage having grooves. According to the final Office Action:

Abe discloses in Figures 3 and 4 the carriage 12 and the first and second strips 1a configured to accept the carriage. The side groove configured to accept the respective vertical side grooves are typical and inherent to the Abe's disclosed structure.

Paragraph 20, Office Action mailed June 27, 2003. First, the mount 12 as explicitly disclosed by the Abe '434 patent does not disclose grooves configured to accept vertical strips. The Examiner apparently admits that the Abe '434 patent does not explicitly disclose grooves in the quoted section. Second, grooves are neither typical nor inherent in the structure disclosed in the Abe '434 patent. The Examiner has not cited any prior art showing grooves as being typical and the Applicant submits that such grooves are not typical. Furthermore, even if such grooves were typical, the Abe '434 patent must be modified to add the grooves. However, no such modification was made in the rejection of claim 19. Finally, "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." M.P.E.P. § 2112; *In re Rijchaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993). "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. and Inter. 1990) (emphasis original). Therefore, since the Abe '434 patent does not disclose grooves and grooves do not necessarily flow from the teachings of the Abe '434 patent, the Abe '434 patent does not disclose a carriage having grooves as claimed in claim 19. As a final comment, Applicant notes that the above section quoted from paragraph 20 of the Office Action mailed June 27, 2003 was only used to reject claim 19, but not claims 10 or 45, even though these two claims have similar language. Nevertheless, the above argument also applies to claims 10 and 45, as the Abe '434 patent does not disclose grooves.



Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 25

In regard to claim 24, the prior art of record does not disclose or suggest a carriage including a pivot ring configured to accept a wind powered generator therein. As discussed above in regard to claim 9, the Abe '434 patent does not disclose a carriage including a pivot ring or a carriage including a pivot ring configured to accept a wind powered generator therein.

Accordingly, claims 9, 10, 15, 17-19, 24 and 26 are allowable over the Abe '434 patent and the Board is requested to reverse the rejection of these claims.

#### Issue 2

Whether claims 16 and 25 are unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 6,239,507 to Douthit?

#### Argument

In order to establish a *prima facie* case of obviousness, three criteria must be met. M.P.E.P. §706.02(j). Firstly, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Fine*, 5 U.S.P.Q.2d 1586 (Fed. Cir. 1988). Secondly, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Thirdly, the prior art reference (or references) must teach or suggest all the claim limitations. *In re Royka*, 180 U.S.P.Q. 550 (C.C.P.A. 1974). The burden is on the Examiner to create a *prima facie* case of obviousness, not on the Applicant to provide reasons for patentability. See *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Examiner has not created a *prima facie* case of obviousness to reject claims 16 and 25 over the Abe '434 patent in view of the Douthit '507 patent.

#### Discussion

Claim 16 further defines the wind powered generator support assembly of claim 9 by stating that the carriage includes a plurality of contacts configured to contact a rotating portion of the wind powered generator to allow power to be transferred from the wind powered generator to a remote point.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 26

The prior art of record does not disclose or suggest the claimed features of claim 16. First, claim 16 depends from claim 9, and since claim 9 defines patentable subject matter as discussed above, claim 16 defines patentable subject matter. Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. According to the Office Action:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the tower as taught by Abe and to provide the carriage including the plurality of contacts contacting the rotating portion of the wind powered generator as taught by Douthit for the purpose of transferring the current from the generator to external storage or transmission means while allowing unlimited and free rotation of the generation above a vertical axis.

Paragraph 9, Office Action mailed June 27, 2003. However, there is no suggestion or motivation for substituting the turntable 16 as disclosed in the Douthit '507 patent for the mount 12 disclosed in the Abe '434 patent. Such a combination would not allow the nacelle 2, rotor head 4 or rotor blades 5 of the Abe '434 patent to be raised or lowered because the turntable 16 as disclosed by the Douthit '507 patent could not move on the guides as disclosed by the Abe '434 patent. Therefore, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the Abe '434 patent with the Douthit '507 patent as set forth in the final rejection of the claims. In response to the above argument, the final Office Action states:

In combination Abe and Douthit teach the invention as claimed.  
The detailed design of such system is a design choice that  
requires only routine skills in the art.

Paragraph 20 of Office Action mailed June 27, 2003. First, Applicant notes that it is impermissible within the framework of §103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art. *In re Wesslau*, 353 F.2d 238, 241, 147 USPQ 391, 393 (CCPA 1965); see also *In re Mercer*, 515 F.2d 1161, 1165-66, 185 USPQ 774, 778 (CCPA 1975). Second, if a further modification or "a design

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 27

choice" is needed to reject claim 16, the Abe '434 patent and the Douthit '507 patent do not teach the invention as claimed as set forth by the Examiner. Third, changing the function of a combination is more than a mere design choice and there must be some motivation or suggestion for making such a change. See *In re Chu*, 36 USPQ2d 1089 (Fed. Cir. 1995). Accordingly, claim 16 is in condition for allowance.

Claim 25 further defines the wind powered electrical generation system of claim 18 by stating that the carriage includes a plurality of contacts configured to contact the rotating portion of the wind powered generator to allow power to be transferred from the wind powered generator to a remote point.

The prior art of record does not disclose or suggest the claimed features of claim 25. First, claim 25 depends from claim 18, and since claim 18 defines patentable subject matter as discussed above, claim 25 defines patentable subject matter. Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. According to the Office Action:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the tower as taught by Abe and to provide the carriage including the plurality of contacts contacting the rotating portion of the wind powered generator as taught by Douthit for the purpose of transferring the current from the generator to external storage or transmission means while allowing unlimited and free rotation of the generation above a vertical axis.

Paragraph 9 of the Office Action mailed June 27, 2003. However, there is no suggestion or motivation for substituting the turntable 16 as disclosed in the Douthit '507 patent for the mount 12 disclosed in the Abe '434 patent. Such a combination would not allow the nacelle 2, rotor head 4 or rotor blades 5 of the Abe '434 patent to be raised or lowered because the turntable 16 as disclosed by the Douthit '507 patent could not move on the guides 1a disclosed by the Abe '434 patent. Therefore, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the Abe '434 patent with the Douthit '507 patent as set forth in the final Office

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 28

Action. Furthermore, modifying the Abe '434 patent in view of the Douthit '507 patent is more than a mere "design change" as disclosed above regarding claim 16 and therefore is improper. Accordingly, claim 25 is in condition for allowance.

Accordingly, claims 16 and 25 are allowable over the Abe '434 patent in view of the Douthit '507 patent, and the Board is requested to reverse the rejection of these claims.

### Issue 3

Whether claims 27 and 28 are unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 2,052,454 to Ellwood, 2d., et al?

### Argument

In order to establish a *prima facie* case of obviousness, three criteria must be met. M.P.E.P. §706.02(j). Firstly, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Fine*, 5 U.S.P.Q.2d 1586 (Fed. Cir. 1988). Secondly, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Thirdly, the prior art reference (or references) must teach or suggest all the claim limitations. *In re Royka*, 180 U.S.P.Q. 550 (C.C.P.A. 1974). The burden is on the Examiner to create a *prima facie* case of obviousness, not on the Applicant to provide reasons for patentability. See *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Examiner has not created a *prima facie* case of obviousness to reject claims 27 and 28 over the Abe '434 patent in view of the Ellwood, 2d., et al. '454 patent.

### Discussion

Claim 27 further defines the wind powered electrical generation system of claim 18 by stating that the wind powered generator includes a housing, a rod configured to rotate within the housing and at least two spars connected to the rod and extending radially therefrom, wherein one of the airfoils is connected to each of the spars. Claim 27 depends from claim 18, and since claim 18 defines patentable subject matter as discussed above, claim 27 defines patentable subject matter. Accordingly, claim 27 is in condition for allowance.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 29

Claim 28 further defines the wind powered electrical generation system of claims 18 and 27 by stating that the airfoils are configured to pivot about the spars and to slide longitudinally along the spars, with the airfoils being biased towards a first end of the spars connected to the rod, wherein each spar includes a cam member adjacent a second end of the spar opposite to the rod, wherein each airfoil includes a cam surface configured to engage the cam member on the spar, and wherein the cam member and the cam surface are configured to engage to thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.

The prior art of record does not disclose or suggest the claimed features of claim 28. First, claim 28 depends from claims 18 and 27, and since claims 18 and 27 define patentable subject matter as discussed above, claim 28 defines patentable subject matter. Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings as set forth in the Office Action. According to the Office Action:

Re claim 28, the combined system include the cam member shown by Ellwood, 2d as element 23 and the cam surface 32 engaging the cam member to rotate the airfoils relatively to the spars as the airfoils move along the spars. However, it does not disclose the cam member adjacent the second end of the spar, opposite the hub. It would have been an obvious matter of design choice to locate the cam member adjacent the second end of the spar, opposite the hub for an easy access to the pitch adjustment mechanism without taking the blade out of the spar, since applicant has not disclosed that this particular arrangement of the cam member solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the cam member adjacent the hub.

Paragraph 10, Office Action mailed June 27, 2003. First, the element 23 is not a cam member. Ellwood, 2d., et al. disclose that element 23 is the outer wider tip end of the blade 21. Therefore, the wider outer tip end 23 of the blade 21 is not a cam member, much less a cam member that abuts a reduced inner end 32 of a screw 31 connected to a blade carrying ring 10. These two elements are spaced far apart and do not come in contact with each other. Second, it would not have been "an obvious matter of design choice to locate the cam member

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 30

adjacent the second end of the spar, opposite the hub." Since the outer wider tip end 23 of the blade 21 is already adjacent the second end of the spar and opposite a hub, there is no suggestion or motivation for making such a modification because the modification does not alter the Ellwood, 2d. et al. '454 patent. Third, according to the Ellwood, 2d., et al. '454 patent, the screw 31 has "a reduced inner end 32 loosely engaged in a spiral channel or groove 33 formed in the hub 18 on the control shaft 17 and this hub slides radially to produce the turning of the same with the resulting adjustment of the blades to vary the pitch of the same." Lines 3-8 of the Ellwood, 2d., et al. '454 patent. Applicant notes that the screw 31 is fixed to the ring 10 and that the screw 31 must remain fixed relative to the ring 10 for the blade 21 to rotate. Accordingly, to move the reduced inner end 32 of the screw 31 to a second end of the hollow tubular stems 19 would require that the ring 10 also be moved to the outside or second end of the hollow tubular stems 19. There is no suggestion or motivation for making such a change because the resultant change would destroy any usefulness of the blades 21. Further, according to §2142 of the M.P.E.P.:

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Furthermore, according to the same section:

The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness.

As discussed above, the Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. The initial burden is not on the Applicant to factually support a prima facie conclusion of non-obviousness. Finally, Applicant has disclosed that the arrangement of the cam member and cam surface rotates the airfoils out of the wind.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 31

Therefore, the arrangement claimed in claim 28 solves a problem and is for a particular purpose. Accordingly, claim 28 is in condition for allowance.

In regard to the third criterion of obviousness, the prior art references do not teach or suggest all of the claim limitations. In regard to claim 28, even if there was a suggestion or motivation to combine the Abe '434 patent with the Ellwood, 2d., et al. '454 patent as put forth in the Office Action, such a combination would not result in a spar including a cam member. Applicant notes that in the rejection of claim 28, the Examiner has not modified the prior art to move a cam surface to an end of a spar opposite a hub. The Examiner has only modified the Ellwood, 2d., et al. '454 patent to "locate the cam member adjacent the second end of the spar." Therefore, the combination as set forth in the Office Action does not include a spar including a cam member adjacent a second end of a spar opposite to a rod and an air foil including a cam surface configured to engage the cam member adjacent a second end of a spar opposite to a rod. Accordingly, claim 28 is in condition for allowance.

Accordingly, claims 27 and 28 are allowable over the Abe '434 patent in view of the Ellwood, 2d et al. '454 patent, and the Board is requested to reverse the rejection of these claims.

Issue 4: Whether claim 29 is unpatentable over U.S. Patent No. 4,311,434 to Abe?

Argument

In order to establish a *prima facie* case of obviousness, three criteria must be met. M.P.E.P. §706.02(j). Firstly, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Fine*, 5 U.S.P.Q.2d 1586 (Fed. Cir. 1988). Secondly, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Thirdly, the prior art reference (or references) must teach or suggest all the claim limitations. *In re Royka*, 180 U.S.P.Q. 550 (C.C.P.A. 1974). The burden is on the Examiner to create a *prima facie* case of obviousness, not on the Applicant to provide reasons for patentability. See *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 32

Examiner has not created a prima facie case of obviousness to reject claim 29 over the Abe '434 patent in view of the Ellwood, 2d., et al. '454 patent.

#### Discussion

Claim 29 further defines the wind powered electrical generation system of claim 18 by stating that the wind powered generator includes a vertical leg and the vertical leg is configured to be placed within the carriage and rotates relative to the carriage when the wind powered generator is placed within the carriage.

The prior art of record does not disclose or suggest the claimed features of claim 29. First, claim 29 depends from claim 18, and since claim 18 defines patentable subject matter as discussed above, claim 29 defines patentable subject matter. Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the Abe '434 patent as set forth in the Office Action. In the rejection of claim 29 in the Office Action, the Office Action states that:

Abe disclosed the airfoil and generator including a vertical leg 10 to rotate the generator relatively the carriage. However, Abe does not disclose the leg rotating relatively to the carriage. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the leg rotating relatively to the carriage for the purpose of eliminating an oversized bearing and replace it with a shaft diameter sized bearing, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 U.S.P.Q. 70.

Paragraph 11, Office Action mailed June 27, 2003. The Office Action goes on to state that:

They are well known in the art systems using shafts rotating with the generator system in a stationary opening furnished with bearings. Such an arrangement is shown for example as element 210 in US Patent 5,584,655 to Deering or element 22 in US Patent No. 5,178,518 to Carter, Sr. cited in the prior art made of record. Such modification will require a simple rearrangement of the disclosed features that involves only routine skill in the art.

Paragraph 20, Office Action mailed June 27, 2003. Applicant would like to first point out that the final Office Action is contradictory and confusing because the Examiner has apparently



Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 33

modified a single reference to reject a claim but has modified the single reference by combining it with a secondary reference without providing any suggestion or motivation for making such a combination. Second, according to the Office Action, it would have been obvious to provide the leg rotating relatively to the carriage for the purpose of eliminating an oversized bearing and replace it with a shaft diameter sized bearing. According to the Office Action, the motivation for making such a substitution is that rearranging parts of an invention involves only routine skill in the art. Applicant does not understand how a substitution is similar to rearranging parts and submits that the case cited by the Examiner is not applicable to any rejection of claim 29. Furthermore, "the mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivational reason for the worker in the art, without the benefit of Applicants' specification, to make the necessary changes in the reference device." MPEP 2144.04; *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). Accordingly, there is no suggestion or motivation for modifying the Abe '434 patent as set forth in the final rejection of claim 29.

Third, according to the Abe '434 patent, the shaft 10 is fixed in position on the base 9 such that the worm 20 and motor 21 can interconnect with the fixed shaft 10 to hold the nacelle 2 stationary relative to the base 9. See lines 18-43 of column 3 of the Abe '434 patent. However, if the shaft 10 was able to rotate relative to the base 9, the nacelle 2 would not be able to be held in place as directed by the Abe '434 patent. Accordingly, the Abe '434 patent teaches away from any modification wherein the shaft 10 is able to rotate relative to the base 9 and there is no suggestion to modify a reference if a reference teaches away from such a modification. See *In re Fine*, 5 USPQ2d 1596 (Fed. Cir. 1988). Accordingly, there is no suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art to modify the reference as set forth in the Office Action.

Moreover, in regard to the third criterion of obviousness, the prior art reference does not teach or suggest all the claim limitations. Even if there was a suggestion or motivation for modifying the Abe '434 reference as stated in the Office Action, any such modification would not include a wind powered generator that has a vertical leg configured to be placed within the

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 34

mount 12 of the Abe '434 patent. As set forth above regarding claim 9, the base 9 and the shaft 10 are not located within the mount 12. Therefore, even if there was a motivation or suggestion for modifying the Abe '434 patent, the resulting modification would not include a wind powered generator placed within a carriage (which is only identified by the Examiner as being the mount 12).

Accordingly, claim 29 is allowable over the Abe '434 patent, and the Board is requested to reverse the rejection of this claim.

Issue 5: Whether claims 30, 44, 45, 50 and 52 are unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,584,655 to Deering?

Argument

In order to establish a *prima facie* case of obviousness, three criteria must be met. M.P.E.P. §706.02(j). Firstly, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Fine*, 5 U.S.P.Q.2d 1586 (Fed. Cir. 1988). Secondly, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Thirdly, the prior art reference (or references) must teach or suggest all the claim limitations. *In re Royka*, 180 U.S.P.Q. 550 (C.C.P.A. 1974). The burden is on the Examiner to create a *prima facie* case of obviousness, not on the Applicant to provide reasons for patentability. See *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Examiner has not created a *prima facie* case of obviousness to reject claims 30, 44, 45, 50 and 52 over the Abe '434 patent in view of the Deering '655 patent.

Discussion

Claim 30 depends from claims 18 and 29 and further defines the wind powered electrical generation system by stating that the wind powered generator further includes a horizontal leg including a first shaft and a second shaft, with the first shaft being rotatable within the second shaft, wherein the second shaft of the horizontal leg is connected to an end of the vertical leg, the air foils are interconnected to the first shaft and the generator is connected to the second shaft.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 35

The prior art of record does not disclose or suggest the claimed features of claim 30. First, claim 30 depends from claims 18 and 29 and since claims 18 and 29 define unobvious patentable subject matter as discussed above, claim 30 defines patentable subject matter. Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to combine the reference teachings. According to the Office Action:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined tower and to the horizontal leg including first and second shaft with the first shaft being rotatable within the second shaft and being interconnected with the foils and the second shaft connected to the vertical leg and the generator as taught by Deering for the purpose of positioning the airofils at a desired downstream configuration by rotating the generator about the vertical axis while allowing the foil and shaft rotation over the horizontal axis and consequently to turn the electric generator.

Paragraph 12, Office Action mailed June 27, 2003. Applicant submits that there is no suggestion or motivation for combining the Abe '434 patent with the Deering '655 patent as set forth in the Office Action because the Abe '434 patent already includes rotor blades 5 that can rotate about the vertical shaft 10. Accordingly, such a modification of the Abe '434 patent would not improve the Abe '434 patent because the invention disclosed in the Abe '434 patent already performs the function set forth as being the motivation for combining the Abe '434 patent with the Deering '655 patent. Moreover, as illustrated in Fig. 2 of the Deering '655 patent, the wind turbine as disclosed in the '655 patent is very large (see person inside of the generator in Fig. 2). Therefore, if the shaft 202 and the spindle 210 were placed on the mount 12, the rope 14 would not be able to raise and lower such a huge object. In other words, the huge discrepancy in size between the wind turbine of the Abe '434 patent and the wind turbine of the '655 patent goes against any suggestion or motivation for combining the references. Accordingly, claim 30 is in condition for allowance.

Claim 44 defines a wind powered electrical generation system including, among other things, a tower including an elevator having a carriage, with the elevator being configured to move the carriage between a bottom and a top of the tower, a first member rotatably connected

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 36

to the carriage, with the first member having an axis of rotation substantially parallel to the direction of movement of the carriage, a second member connected to the first member, with the second member having a first end and a second end, a hub assembly connected to the first end of the second member, with the hub assembly including a plurality of spars, an airfoil is connected to each spar, and a generator connected to the second end of the second member, wherein the spars and the second member will rotate as wind passes the airfoils, thereby powering the generator.

The prior art of record does not disclose or suggest the claimed features of claim 44. Applicant submits that there is no suggestion or motivation for combining the Abe '434 patent with the Deering '655 patent as set forth in the Office Action because the Abe '434 patent already includes rotor blades 5 that can rotate about the vertical shaft 10. Accordingly, such a modification of the Abe '434 patent would not improve the Abe '434 patent because the invention disclosed in the Abe '434 patent already performs the function set forth as being motivation for combining the Abe '434 patent with the Deering '655 patent. Moreover, as illustrated in Fig. 2 of the Deering '655 patent, the wind turbine as disclosed in the '655 patent is very large (see person inside of the generator in Fig. 2). Therefore, if the shaft 202 and the spindle 210 were placed on the mount 12, the rope 14 would not be able to raise and lower such a huge object. In other words, the huge discrepancy in size between the wind turbine of the Abe '434 patent and the wind turbine of the '655 patent goes against any suggestion or motivation for combining the references. Accordingly, claim 44 is in condition for allowance.

Claim 45 depends from claim 44 and further defines the elevator as including a track having a first side guide with a first vertical strip and a second side guide with a second vertical strip and further defines the carriage as including a first side groove configured to accept the first vertical strip and a second side groove configured to accept the second vertical strip, thereby allowing the carriage to slide along the first vertical strip and the second vertical strip of the track to move between the top and bottom of the tower.

The prior art of record does not disclose or suggest the claimed features of claim 45. First, claim 45 depends from claim 44, and since claim 44 defines patentable subject matter as discussed above, claim 45 defines patentable subject matter. Second, the prior art of record

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 37

does not disclose or suggest a carriage including a first side groove configured to accept a first vertical strip and a second side groove configured to accept a second vertical strip.

Specifically, the Abe '434 patent does not disclose that the mount 12 has any grooves or grooves accepting vertical strips. Accordingly, claim 45 is in condition for allowance.

Claim 50 depends from claim 44 and further defines the carriage as including a pivot ring having a plurality of roller bearings configured to accept the first member thereon, thereby allowing the first member to rotate.

The prior art of record does not disclose or suggest the above noted features of claim 50. First, claim 50 depends from claim 44, and since claim 44 defines unobvious patentable subject matter as discussed above, claim 50 defines patentable subject matter. Second, the prior art of record does not disclose or suggest the above noted features of claim 50. Specifically, the Abe '434 patent does not disclose a vertical elevator on a tower including a track and a carriage configured to move along the track, with the carriage including a pivot ring configured to accept a wind powered generator therein. The Abe '434 patent discloses a thrust bearing 17 between a base 9 and a supporting member 6. According to the final rejection of the claims, the Abe '434 patent discloses a carriage 12 and a pivot ring in the form of a roller bearing 17. Paragraph 7, Office Action mailed June 27, 2003. However, as clearly illustrated in Figs. 1 and 2 of the Abe '434 patent, the mount 12 does not include the thrust bearing 17. Notably, in Fig. 1, the thrust bearing 17 is spaced from the mount 12. Therefore, the mount 12 does not include a pivot ring as claimed in claim 9. Moreover, according to the final Office Action:

The ring is disclosed in Figure 3 that clearly shows the bearing 17 having an upper circular race and a lower circular race enclosing bearing's roller elements. One of ordinary skilled in the art would recognize the well known in the art circular or ring structure of the bearing.

Paragraph 20, Office Action mailed June 27, 2003. However, Fig. 2 of the Abe '434 patent only discloses two spaced apart bearings 17. Therefore, the Abe '434 patent does not disclose that the bearings 17 are in the form of a circle or a ring. Furthermore, since the supporting member 6 is fixed to the shaft 10 and the shaft 10 is fixed to the base 9, the thrust bearings 17

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 38

would not have to be in the form of a circle or ring. See lines 25-28 of column 3 of the Abe '434 patent. Applicant notes that "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." M.P.E.P. § 2112; *In re Rijchaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993). "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. and Inter. 1990) (emphasis original). Therefore, since the Abe '434 patent does not disclose a pivot ring and a pivot ring does not necessarily flow from the teachings of the Abe '434 patent, the Abe '434 patent, even when combined with the Deering '655 patent, does not disclose a pivot ring as claimed in claim 50. Accordingly, claim 50 is in condition for allowance.

Claim 52 depends from claim 44 and further defines a wind powered electrical generation system as including a carriage raising assembly having a winch, a cable and a pulley. The prior art of record does not disclose or suggest the above noted features of claim 52. Specifically, claim 52 depends from claim 44, and since claim 44 defines unobvious patentable subject matter as discussed above, claim 52 defines patentable subject matter. Accordingly, claim 52 is in condition for allowance.

Accordingly, claims 30, 44, 45, 50 and 52 are allowable over the Abe '434 patent in view of the Deering '655 patent, and the Board is requested to reverse the rejection of these claims.

Issue 6: Whether claims 31-33 and 53-56 are unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,584,655 to Deering and U.S. Patent No. 2,052,454 to Ellwood, 2d., et al?

Argument

In order to establish a *prima facie* case of obviousness, three criteria must be met. M.P.E.P. §706.02(j). Firstly, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art,

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 39

to modify the reference or to combine reference teachings. *In re Fine*, 5 U.S.P.Q.2d 1586 (Fed. Cir. 1988). Secondly, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Thirdly, the prior art reference (or references) must teach or suggest all the claim limitations. *In re Royka*, 180 U.S.P.Q. 550 (C.C.P.A. 1974). The burden is on the Examiner to create a prima facie case of obviousness, not on the Applicant to provide reasons for patentability. See *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Examiner has not created a prima facie case of obviousness to reject claims 31-33 and 53-56 over the Abe '434 patent in view of the Deering '655 patent and the Ellwood, 2d., et al. '454 patent.

#### Discussion

Claim 31 depends from claims 18, 29 and 30 and further defines the wind powered electrical generation system by stating that the second shaft of the horizontal leg is connected to an end of the vertical leg at a position off center from an axis of the vertical leg.

The prior art of record does not disclose or suggest the features of claim 31. First, claim 31 depends from claims 18, 29 and 30 and since claims 18, 29 and 30 define unobvious patentable subject matter as discussed above, claim 31 defines unobvious patentable subject matter. Second, the prior art references do not disclose or suggest all of the claim limitations. Specifically, the prior art of record does not disclose or suggest a second shaft of a horizontal leg connected to an end of a vertical leg at a position off center from an axis of the vertical leg. According to the final Office Action, "the second shaft of a horizontal leg is connected to an end of a vertical leg at a position off center of axis of the vertical leg is disclosed by Deering in Fig. 2 (see elements 202 and 210)." Paragraph 20, Office Action mailed June 27, 2003. However, the Deering '655 patent discloses that the spindle 210 has an axis 206 and that the low-speed shaft 202 is located along the axis of the spindle 210. Additionally, Applicant notes that the shaft 202 as disclosed in the Deering '655 patent is not connected to the spindle 210. It appears that a tube surrounding the shaft 202 is connected to the spindle 210. Nevertheless, the tube surrounding the low-speed shaft 202 is at a position on the center of the axis of the spindle 210. Accordingly, claim 31 is in condition for allowance.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 40

Claim 32 depends from claims 18, 29, 30 and 31 and further defines the wind powered electrical generation system by stating that the first shaft includes a hub fixed to an end thereof, and spars are connected to the hub, with the spars extending from the hub in a position substantially perpendicular to the first shaft. Claim 32 depends from claims 18, 29, 30 and 31 and since claims 18, 29, 30 and 31 define patentable subject matter discussed above, claim 32 defines patentable subject matter. Accordingly, claim 32 is in condition for allowance.

Claim 33 depends from claims 18 and 29-32 and further defines the wind powered electrical generation system by stating that the airfoils are configured to pivot about the spars and to slide longitudinally along the spars, and the airfoils are biased towards a first end of the spars connected to the hub. Each spar includes a cam member adjacent a second end of the spar opposite to the hub, and each airfoil includes a cam surface configured to engage the cam member on the spar. The cam member and the cam surface are configured to engage to thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.

The prior art of record does not disclose or suggest the claimed features of claim 33. First, claim 33 depends from claims 18 and 29-32, and since claims 18 and 29-32 define unobvious patentable subject matter as discussed above, claim 33 defines patentable subject matter. Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. According to the Office Action:

Re claim 33, the combined system include the cam member shown by Ellwood, 2d as element 23 and the cam surface 32 engaging the cam member to rotate the airfoils relatively to the spars as the airfoils move along the spars. However, it does not disclose the cam member adjacent the second end of the spar, opposite the hub. It would have been an obvious matter of design choice to locate the cam member adjacent the second end of the spar, opposite the hub for an easy access to the pitch adjustment mechanism without taking the blade out of the spar, since applicant has not disclosed that this particular arrangement of the cam member solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the cam member adjacent the hub.



Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 41

Paragraph 13, Office Action mailed June 27, 2003. First, the element 23 is not a cam member. Ellwood, 2d., et al. disclose that element 23 is the outer wider tip end of the blade 21. Therefore, the wider outer tip end 23 of the blade 21 is not a cam member, much less a cam member that abuts a reduced inner end 32 of a screw 31 connected to a blade carrying ring 10. These two elements are spaced far apart and do not come in contact with each other. Second, it would not have been "an obvious matter of design choice to locate the cam member adjacent the second end of the spar, opposite the hub." Since the outer wider tip end 23 of the blade 21 is already adjacent the second end of the spar and opposite a hub, there is no suggestion or motivation for making such a modification because the modification does not alter the Ellwood, 2d. et al. '454 patent. Third, according to the Ellwood, 2d., et al. '454 patent, the screw 31 has "a reduced inner end 32 loosely engaged in a spiral channel or groove 33 formed in the hub 18 on the control shaft 17 and this hub slides radially to produce the turning of the same with the resulting adjustment of the blades to vary the pitch of the same." Lines 3-8 of the Ellwood, 2d., et al. '454 patent. Applicant notes that the screw 31 is fixed to the ring 10 and that the screw 31 must remain fixed relative to the ring 10 for the blade 21 to rotate. Accordingly, to move the reduced inner end 32 of the screw 31 to a second end of the hollow tubular stems 19 would require that the ring 10 also be moved to the outside or second end of the hollow tubular stems 19. There is no suggestion or motivation for making such a change because the resultant change would destroy any usefulness of the blades 21. Fourth, according to §2142 of the M.P.E.P.:

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Furthermore, according to the same section:

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 42

The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness.

As discussed above, the Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. The initial burden is not on the Applicant to factually support a prima facie conclusion of non-obviousness. Finally, Applicant has disclosed that the arrangement of the cam member and cam surface rotates the airfoils out of the wind. Therefore, the arrangement claimed in claim 33 solves a problem and is for a particular purpose. Accordingly, claim 33 is in condition for allowance.

In regard to the third criterion of obviousness, the prior art references do not teach or suggest all of the claim limitations. In regard to claim 33, even if there was a suggestion or motivation to combine the Abe '434 patent with the Deering '655 patent and the Ellwood, 2d., et al. '454 patent as put forth in the Office Action, such a combination would not result in a spar including a cam member. Applicant notes that in the rejection of claim 33, the Examiner has not modified the prior art to move a cam surface to an end of a spar opposite a hub. The Examiner has only modified the Ellwood, 2d., et al. '454 patent to "locate the cam member adjacent the second end of the spar." Therefore, the combination as set forth in the Office Action does not include a spar including a cam member adjacent a second end of a spar opposite to a rod and an air foil including a cam surface configured to engage the cam member adjacent a second end of a spar opposite to a rod. Accordingly, claim 33 is in condition for allowance.

Claim 53 depends from claim 44 and further defines the wind powered electrical generation system by stating that the airfoils are configured to pivot about the spars and to slide longitudinally along the spars, and the airfoils are biased towards a first end of the spars connected to the hub. Each spar includes a cam member adjacent a second end of the spar opposite to the hub, and each airfoil includes a cam surface configured to engage the cam member on the spar. The cam member and the cam surface are configured to engage to

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 43

thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.

The prior art of record does not disclose or suggest the claimed features of claim 53. First, claim 53 depends from claim 44, and since claim 44 defines unobvious patentable subject matter as discussed above, claim 53 defines patentable subject matter. Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. According to the Office Action:

Re claim 33, the combined system include the cam member shown by Ellwood, 2d as element 23 and the cam surface 32 engaging the cam member to rotate the airfoils relatively to the spars as the airfoils move along the spars. However, it does not disclose the cam member adjacent the second end of the spar, opposite the hub. It would have been an obvious matter of design choice to locate the cam member adjacent the second end of the spar, opposite the hub for an easy access to the pitch adjustment mechanism without taking the blade out of the spar, since applicant has not disclosed that this particular arrangement of the cam member solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the cam member adjacent the hub.

Paragraph 10, Office Action mailed June 27, 2003.

Applicant assumes that the quoted section also applies to claim 53. First, the element 23 is not a cam member. Ellwood, 2d., et al. disclose that element 23 is the outer wider tip end of the blade 21. Therefore, the wider outer tip end 23 of the blade 21 is not a cam member, much less a cam member that abuts a reduced inner end 32 of a screw 31 connected to a blade carrying ring 10. These two elements are spaced far apart and do not come in contact with each other. Second, it would not have been "an obvious matter of design choice to locate the cam member adjacent the second end of the spar, opposite the hub." Since the outer wider tip end 23 of the blade 21 is already adjacent the second end of the spar and opposite a hub, there is no suggestion or motivation for making such a modification because the modification does not alter the Ellwood, 2d. et al. '454 patent. Third, according to the Ellwood, 2d., et al. '454 patent, the screw 31 has "a reduced inner end 32 loosely engaged in a

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 44

spiral channel or groove 33 formed in the hub 18 on the control shaft 17 and this hub slides radially to produce the turning of the same with the resulting adjustment of the blades to vary the pitch of the same." Lines 3-8 of the Ellwood, 2d., et al. '454 patent. Applicant notes that the screw 31 is fixed to the ring 10 and that the screw 31 must remain fixed relative to the ring 10 for the blade 21 to rotate. Accordingly, to move the reduced inner end 32 of the screw 31 to a second end of the hollow tubular stems 19 would require that the ring 10 also be moved to the outside or second end of the hollow tubular stems 19. There is no suggestion or motivation for making such a change because the resultant change would destroy any usefulness of the blades 21. Fourth, according to §2142 of the M.P.E.P.:

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Furthermore, according to the same section:

The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness.

As discussed above, the Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. The initial burden is not on the Applicant to factually support a prima facie conclusion of non-obviousness. Finally, Applicant has disclosed that the arrangement of the cam member and cam surface rotates the airfoils out of the wind. Therefore, the arrangement claimed in claim 53 solves a problem and is for a particular purpose. Accordingly, claim 53 is in condition for allowance.

In regard to the third criterion of obviousness, the prior art references do not teach or suggest all of the claim limitations. In regard to claim 33, even if there was a suggestion or motivation to combine the Abe '434 patent with the Deering '655 patent and the Ellwood, 2d.,

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 45

et al. '454 patent as put forth in the Office Action, such a combination would not result in a spar including a cam member. Applicant notes that in the rejection of claim 53, the Examiner has not modified the prior art to move a cam surface to an end of a spar opposite a hub. The Examiner has only modified the Ellwood, 2d., et al. '454 patent to "locate the cam member adjacent the second end of the spar." Therefore, the combination as set forth in the Office Action does not include a spar including a cam member adjacent a second end of a spar opposite to a rod and an air foil including a cam surface configured to engage the cam member adjacent a second end of a spar opposite to a rod. Accordingly, claim 53 is in condition for allowance.

Claim 54 depends from claim 44 and further defines the wind powered electrical generation system by stating that the second shaft of the horizontal leg is connected to an end of the vertical leg at a position off center from an axis of the vertical leg.

The prior art of record does not disclose or suggest the features of claim 54. First, claim 54 depends from claim 44 and since claim 44 defines unobvious patentable subject matter as discussed above, claim 54 defines unobvious patentable subject matter. Second, the prior art references do not disclose or suggest all of the claim limitations. Specifically, the prior art of record does not disclose or suggest a second shaft of a horizontal leg connected to an end of a vertical leg at a position off center from an axis of the vertical leg. According to the final Office Action, "the second shaft of a horizontal leg is connected to an end of a vertical leg at a position off center of axis of the vertical leg is disclosed by Deering in Fig. 2 (see elements 202 and 210)." Paragraph 20, Office Action mailed June 27, 2003. However, the Deering '655 patent discloses that the spindle 210 has an axis 206 and that the low-speed shaft 202 is located along the axis of the spindle 210. Additionally, Applicant notes that the shaft 202 as disclosed in the Deering '655 patent is not connected to the spindle 210. It appears that a tube surrounding the shaft 202 is connected to the spindle 210. Nevertheless, the tube surrounding the low-speed shaft 202 is at a position on the center of the axis of the spindle 210. Accordingly, claim 54 is in condition for allowance.

Claim 55 depends from claims 44 and 54 further defines the wind powered electrical generation system by stating that the first shaft includes a hub fixed to an end thereof, and

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 46

spars are connected to the hub, with the spars extending from the hub in a position substantially perpendicular to the first shaft. Claim 55 depends from claims 44 and 54, and since claims 44 and 54 define patentable subject matter discussed above, claim 55 defines patentable subject matter. Accordingly, claim 55 is in condition for allowance.

Claim 56 depends from claims 44, 54 and 55 and further defines the wind powered electrical generation system by stating that the airfoils are configured to pivot about the spars and to slide longitudinally along the spars, and the airfoils are biased towards a first end of the spars connected to the hub. Each spar includes a cam member adjacent a second end of the spar opposite to the hub, and each airfoil includes a cam surface configured to engage the cam member on the spar. The cam member and the cam surface are configured to engage to thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.

The prior art of record does not disclose or suggest the claimed features of claim 56. First, claim 56 depends from claims 44, 54 and 55, and since claims 44, 54 and 55 define unobvious patentable subject matter as discussed above, claim 56 defines patentable subject matter. Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. According to the Office Action:

Re claim 33, the combined system include the cam member shown by Ellwood, 2d as element 23 and the cam surface 32 engaging the cam member to rotate the airfoils relatively to the spars as the airfoils move along the spars. However, it does not disclose the cam member adjacent the second end of the spar, opposite the hub. It would have been an obvious matter of design choice to locate the cam member adjacent the second end of the spar, opposite the hub for an easy access to the pitch adjustment mechanism without taking the blade out of the spar, since applicant has not disclosed that this particular arrangement of the cam member solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the cam member adjacent the hub.

Paragraph 10, Office Action mailed June 27, 2003. Applicant assumes that the above quoted section also applies to claim 56. First, the element 23 is not a cam member. Ellwood, 2d., et

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 47

al. disclose that element 23 is the outer wider tip end of the blade 21. Therefore, the wider outer tip end 23 of the blade 21 is not a cam member, much less a cam member that abuts a reduced inner end 32 of a screw 31 connected to a blade carrying ring 10. These two elements are spaced far apart and do not come in contact with each other. Second, it would not have been "an obvious matter of design choice to locate the cam member adjacent the second end of the spar, opposite the hub." Since the outer wider tip end 23 of the blade 21 is already adjacent the second end of the spar and opposite a hub, there is no suggestion or motivation for making such a modification because the modification does not alter the Ellwood, 2d. et al. '454 patent. Third, according to the Ellwood, 2d., et al. '454 patent, the screw 31 has "a reduced inner end 32 loosely engaged in a spiral channel or groove 33 formed in the hub 18 on the control shaft 17 and this hub slides radially to produce the turning of the same with the resulting adjustment of the blades to vary the pitch of the same." Lines 3-8 of the Ellwood, 2d., et al. '454 patent. Applicant notes that the screw 31 is fixed to the ring 10 and that the screw 31 must remain fixed relative to the ring 10 for the blade 21 to rotate. Accordingly, to move the reduced inner end 32 of the screw 31 to a second end of the hollow tubular stems 19 would require that the ring 10 also be moved to the outside or second end of the hollow tubular stems 19. There is no suggestion or motivation for making such a change because the resultant change would destroy any usefulness of the blades 21. Fourth, according to §2142 of the M.P.E.P.:

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Furthermore, according to the same section:

The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 48

produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

As discussed above, the Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. The initial burden is not on the Applicant to factually support a *prima facie* conclusion of non-obviousness. Finally, Applicant has disclosed that the arrangement of the cam member and cam surface rotates the airfoils out of the wind. Therefore, the arrangement claimed in claim 56 solves a problem and is for a particular purpose. Accordingly, claim 56 is in condition for allowance.

In regard to the third criterion of obviousness, the prior art references do not teach or suggest all of the claim limitations. In regard to claim 56, even if there was a suggestion or motivation to combine the Abe '434 patent with the Deering '655 patent and the Ellwood, 2d., et al. '454 patent as put forth in the Office Action, such a combination would not result in a spar including a cam member. Applicant notes that in the rejection of claim 56, the Examiner has not modified the prior art to move a cam surface to an end of a spar opposite a hub. The Examiner has only modified the Ellwood, 2d., et al. '454 patent to "locate the cam member adjacent the second end of the spar." Therefore, the combination as set forth in the Office Action does not include a spar including a cam member adjacent a second end of a spar opposite to a rod and an air foil including a cam surface configured to engage the cam member adjacent a second end of a spar opposite to a rod. Accordingly, claim 56 is in condition for allowance.

Accordingly, claims 31-33 and 53-56 are allowable over the Abe '434 patent in view of the Deering '655 patent and the Ellwood, 2d., et al. '454 patent and the Board is requested to reverse the rejection of these claims.

Issue 7: Whether claims 34, 35 and 39-41 are unpatentable over U.S. Patent No. 2,052,454 to Ellwood, 2d., et al?

Argument

In order to establish a *prima facie* case of obviousness, three criteria must be met. M.P.E.P. §706.02(j). Firstly, there must be some suggestion or motivation, either in the



Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 49

references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Fine*, 5 U.S.P.Q.2d 1586 (Fed. Cir. 1988). Secondly, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Thirdly, the prior art reference (or references) must teach or suggest all the claim limitations. *In re Royka*, 180 U.S.P.Q. 550 (C.C.P.A. 1974). The burden is on the Examiner to create a prima facie case of obviousness, not on the Applicant to provide reasons for patentability. See *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Examiner has not created a prima facie case of obviousness to reject claims 34, 35 and 39-41 over the Ellwood, 2d., et al. '454 patent.

#### Discussion

Claim 34 defines a wind powered generator including, among other things, a housing and a rod configured to rotate within the housing. At least two spars are connected to a hub of the rod and extend radially therefrom. An airfoil is connected to each of the spars at a location distal the rod. The airfoils are configured to pivot about the spars and to slide longitudinally along the spars. The airfoils are biased towards a first end of the spars connected to the hub. Each spar includes a cam member adjacent a second end of the spar opposite to the hub, and each airfoil including a cam surface configured to engage the cam member on the spar. The cam member and the cam surface are configured to engage to thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.

The prior art of record does not disclose or suggest the claimed features of claim 34. First, Applicant notes that the final rejection of claim 34 apparently modifies a tower from an unknown source by adding the shaft A, the shaft 17 and the blades 21 of the Ellwood, 2d., et al. '454 patent to the tower. Applicant notes that claim 34 does not include a tower and believes that the rejection of claim 34 was erroneously placed in the final Office Action and that the Examiner meant to reject claims 34 and 35 in the same manner as the rejection of claims 39-41. Nevertheless, there is no suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. According to the Office Action:

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 50

Re claims 39-41, Ellwood, 2d discloses the cam member 23 and the cam surface 32 engaging the cam member to rotate the airfoils relatively to the spars as the airfoils move along the spars. However, it does not disclose the cam member adjacent the second end of the spar, opposite the hub. It would have been an obvious matter of design choice to locate the cam member adjacent the second end of the spar, opposite the hub for an easy access to the pitch adjustment mechanism without taking the blade out of the spar, since applicant has not disclosed that this particular arrangement of the cam member solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the cam member adjacent the hub.

Paragraph 14, Office Action mailed June 27, 2003. Applicant assumes that the above quoted section also applied to claim 34. First, the element 23 is not a cam member. Ellwood, 2d., et al. disclose that element 23 is the outer wider tip end of the blade 21. Therefore, the wider outer tip end 23 of the blade 21 is not a cam member, much less a cam member that abuts a reduced inner end 32 of a screw 31 connected to a blade carrying ring 10. These two elements are spaced far apart and do not come in contact with each other. Second, it would not have been "an obvious matter of design choice to locate the cam member adjacent the second end of the spar, opposite the hub." Since the outer wider tip end 23 of the blade 21 is already adjacent the second end of the spar and opposite a hub, there is no suggestion or motivation for making such a modification because the modification does not alter the Ellwood, 2d. et al. '454 patent. Third, according to the Ellwood, 2d., et al. '454 patent, the screw 31 has "a reduced inner end 32 loosely engaged in a spiral channel or groove 33 formed in the hub 18 on the control shaft 17 and this hub slides radially to produce the turning of the same with the resulting adjustment of the blades to vary the pitch of the same." Lines 3-8 of the Ellwood, 2d., et al. '454 patent. Applicant notes that the screw 31 is fixed to the ring 10 and that the screw 31 must remain fixed relative to the ring 10 for the blade 21 to rotate. Accordingly, to move the reduced inner end 32 of the screw 31 to a second end of the hollow tubular stems 19 would require that the ring 10 also be moved to the outside or second end of the hollow tubular stems 19. There is no suggestion or motivation for making such a change because the resultant change would destroy any usefulness of the blades 21. Fourth, according to §2142 of the

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 51

M.P.E.P.:

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Furthermore, according to the same section:

The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness.

As discussed above, the Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. The initial burden is not on the Applicant to factually support a prima facie conclusion of non-obviousness. Finally, Applicant has disclosed that the arrangement of the cam member and cam surface rotates the airfoils out of the wind. Therefore, the arrangement claimed in claim 34 solves a problem and is for a particular purpose. Accordingly, claim 34 is in condition for allowance.

In regard to the third criterion of obviousness, the prior art references do not teach or suggest all of the claim limitations. In regard to claim 34, even if there was a suggestion or motivation to combine the Abe '434 patent with the Deering '655 patent and the Ellwood, 2d., et al. '454 patent as put forth in the Office Action, such a combination would not result in a spar including a cam member. Applicant notes that in the rejection of claim 34, the Examiner has not modified the prior art to move a cam surface to an end of a spar opposite a hub. The Examiner has only modified the Ellwood, 2d., et al. '454 patent to "locate the cam member adjacent the second end of the spar." Therefore, the combination as set forth in the Office Action does not include a spar including a cam member adjacent a second end of a spar opposite to a rod and an air foil including a cam surface configured to engage the cam member

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Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 52

adjacent a second end of a spar opposite to a rod. Accordingly, claim 34 is in condition for allowance.

Claim 35 depends from claim 34 and further defines the wind powered generator as including an electrical generator connected to the housing. The prior art of record does not disclose or suggest the claimed features of claim 35. First, claim 35 depends from claim 34, and since claim 34 defines unobvious patentable subject matter, claim 35 defines unobvious patentable subject matter. Second, the prior art of record does not disclose or suggest an electrical generator connected to a housing. According to the final Office Action, "[t]he electrical generator is inherent to any wind powered electric plant." Paragraph 14, Office Action mailed June 27, 2003. However, the Ellwood, 2d., et al. '454 patent neither expressly nor inherently discloses a wind powered electric plant or an electrical generator connected to a housing as claimed in claim 35. "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." M.P.E.P. § 2112; *In re Rijchaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993). "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. and Inter. 1990) (emphasis original). Notably, the Ellwood, 2d., et al. '454 patent does not expressly disclose that the propeller is used to generate power. Furthermore, the propeller of the Ellwood, 2d., et al. '454 is not necessarily used to generate power. For example, the propeller could be used to run a mill. Second, even if the Ellwood, 2d., et al. '454 patent disclosed an electrical generator, the Ellwood, 2d., et al. '454 patent does not necessarily disclose that the electrical generator would be connected to a housing (which also is not expressly disclosed in the Ellwood, 2d., et al. '454 patent). Accordingly, claim 35 is in condition for allowance.

Claim 39 defines a wind powered generator including, among other things, a housing, a rod configured to rotate within the housing and at least six spars connected to the rod and extending radially therefrom. An airfoil connected to each of the spars at a location distal the rod and a generator located upwind of the spars and interconnected to the rod, wherein the

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 53

spars and the rod will rotate as wind passes the airfoils, thereby powering the generator.

The prior art of record does not disclose or suggest the above noted features of claim 39. In regard to the first criterion of obviousness, there is no suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art to modify the reference teachings. While it may have been held that discovering an optimum value of a result effective variable involves only routine skill in the art, the burden is on the Examiner to show that the prior art suggests that the number of blades is a result effective variable. See *In re Boesch*, 205 U.S.P.Q. 215 (C.C.P.A. 1980); M.P.E.P. §2144.05(II)(B). Furthermore, as discussed above, the Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. Accordingly, claims 39-41 are in condition for allowance.

In regard to the third criterion of obviousness, the prior art reference does not teach or suggest all of the claim limitations of claim 39. Even if there was a suggestion or motivation for modifying the Ellwood, 2d et al. '454 patent as set forth in the Office Action, any such modification would not result in a generator being located upwind of spars and interconnected to a rod. "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." M.P.E.P. § 2112; *In re Rijchaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993). "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. and Inter. 1990) (emphasis original). Therefore, the Ellwood, 2d et al. '454 patent, even if it did disclose a generator, does not disclose a generator located upwind of the spars and interconnected to a rod. Accordingly, claim 39 is in condition for allowance.

Claim 40 depends from claim 39 and further defines a wind powered generator by stating that the airfoils are configured to pivot about the spars and to slide longitudinally along the spars, and the airfoils are biased towards a first end of the spars connected to the hub. Each spar includes a cam member adjacent a second end of the spar opposite to the hub, and each airfoil includes a cam surface configured to engage the cam member on the spar. The cam

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 54

member and the cam surface are configured to engage to thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.

The prior art of record does not disclose or suggest the above noted features of claim

40. According to the Office Action:

Re claims 39-41, Ellwood, 2d. discloses the cam member 23 and the cam surface 32 engaging the cam member to rotate the airfoils relatively to the spars as the airfoils move along the spars. However, it does not disclose the cam member adjacent the second end of the spar, opposite the hub. It would have been an obvious matter of design choice to locate the cam member adjacent the second end of the spar, opposite the hub for an easy access to the pitch adjustment mechanism without taking the blade out of the spar, since applicant has not disclosed that this particular arrangement of the cam member solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the cam member adjacent the hub.

Paragraph 14, Office Action mailed June 27, 2003. First, the element 23 is not a cam member. Ellwood, 2d., et al. disclose that element 23 is the outer wider tip end of the blade 21. Therefore, the wider outer tip end 23 of the blade 21 is not a cam member, much less a cam member that abuts a reduced inner end 32 of a screw 31 connected to a blade carrying ring 10. These two elements are spaced far apart and do not come in contact with each other. Second, it would not have been "an obvious matter of design choice to locate the cam member adjacent the second end of the spar, opposite the hub." Since the outer wider tip end 23 of the blade 21 is already adjacent the second end of the spar and opposite a hub, there is no suggestion or motivation for making such a modification because the modification does not alter the Ellwood, 2d. et al. '454 patent. Third, according to the Ellwood, 2d., et al. '454 patent, the screw 31 has "a reduced inner end 32 loosely engaged in a spiral channel or groove 33 formed in the hub 18 on the control shaft 17 and this hub slides radially to produce the turning of the same with the resulting adjustment of the blades to vary the pitch of the same." Lines 3-8 of the Ellwood, 2d., et al. '454 patent. Applicant notes that the screw 31 is fixed to the ring 10 and that the screw 31 must remain fixed relative to the ring 10 for the blade 21 to rotate. Accordingly, to move the reduced inner end 32 of the screw 31 to a second end of the

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 55

hollow tubular stems 19 would require that the ring 10 also be moved to the outside or second end of the hollow tubular stems 19. There is no suggestion or motivation for making such a change because the resultant change would destroy any usefulness of the blades 21. Fourth, according to §2142 of the M.P.E.P.:

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Furthermore, according to the same section:

The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness.

As discussed above, the Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. The initial burden is not on the Applicant to factually support a prima facie conclusion of non-obviousness. Finally, Applicant has disclosed that the arrangement of the cam member and cam surface rotates the airfoils out of the wind. Therefore, the arrangement claimed in claim 40 solves a problem and is for a particular purpose. Accordingly, claim 40 is in condition for allowance.

In regard to the third criterion of obviousness, the prior art references do not teach or suggest all of the claim limitation of claim 40. In regard to claim 40, even if there was a suggestion or motivation to combine the Abe '434 patent with the Deering '655 patent and the Ellwood, 2d., et al. '454 patent as put forth in the Office Action, such a combination would not result in a spar including a cam member. Applicant notes that in the rejection of claim 40, the Examiner has not modified the prior art to move a cam surface to an end of a spar opposite a hub. The Examiner has only modified the Ellwood, 2d., et al. '454 patent to "locate the cam member adjacent the second end of the spar." Therefore, the combination as set forth in the

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 56

Office Action does not include a spar including a cam member adjacent a second end of a spar opposite to a rod and an air foil including a cam surface configured to engage the cam member adjacent a second end of a spar opposite to a rod. Accordingly, claim 40 is in condition for allowance.

Claim 41 depends from claim 39 and further defines the wind powered generator as including an electrical generator connected to the housing. The prior art of record does not disclose or suggest the claimed features of claim 41. First, claim 41 depends from claim 39, and since claim 39 defines unobvious patentable subject matter, claim 40 defines unobvious patentable subject matter. Second, the prior art of record does not disclose or suggest an electrical generator connected to a housing. According to the final Office Action, "[t]he electrical generator is inherent to any wind powered electric plant." Paragraph 14, Office Action mailed June 27, 2003. However, the Ellwood, 2d., et al. '454 patent neither expressly nor inherently discloses a wind powered electric plant or an electrical generator connected to a housing as claimed in claim 41. "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." M.P.E.P. § 2112; *In re Rijchaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993). "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. and Inter. 1990) (emphasis original). Notably, the Ellwood, 2d., et al. '454 patent does not expressly disclose that the propeller is used to generate power. Furthermore, the propeller of the Ellwood, 2d., et al. '454 is not necessarily used to generate power. For example, the propeller could be used to run a mill. Second, even if the Ellwood, 2d., et al. '454 patent disclosed an electrical generator, the Ellwood, 2d., et al. '454 patent does not necessarily disclose that the electrical generator would be connected to a housing (which also is not expressly disclosed in the Ellwood, 2d., et al. '454 patent). Accordingly, claim 41 is in condition for allowance.

Accordingly, claims 34, 35 and 39-41 are allowable over the Ellwood, 2d., et al. '454 patent, and the Board is requested to reverse the rejection of these claims.



Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 57

Issue 8: Whether claims 36, 37, 42 and 43 are unpatentable over U.S. Patent No. 2,052,454 to Ellwood, 2d. et al. in view of U.S. Patent No. 5,584,655 to Deering?

Argument

In order to establish a *prima facie* case of obviousness, three criteria must be met. M.P.E.P. §706.02(j). Firstly, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Fine*, 5 U.S.P.Q.2d 1586 (Fed. Cir. 1988). Secondly, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Thirdly, the prior art reference (or references) must teach or suggest all the claim limitations. *In re Royka*, 180 U.S.P.Q. 550 (C.C.P.A. 1974). The burden is on the Examiner to create a *prima facie* case of obviousness, not on the Applicant to provide reasons for patentability. See *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Examiner has not created a *prima facie* case of obviousness to reject claims 36, 37, 42 and 43 over the Ellwood, 2d., et al. '454 patent in view of the Deering '655 patent.

Discussion

Claim 36 depends from claims 34 and 35, and further defines the wind powered generator as including a vertical leg connected to the housing, wherein the housing is connected to an end of the vertical leg at a position off center from an axis of the vertical leg. The prior art of record does not disclose or suggest the above noted features of claim 36. First, claim 36 depends from claims 34 and 35 and since claims 34 and 35 define patentable subject matter as discussed above, claim 36 defines patentable subject matter. Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to combine the reference teachings. According to the Office Action:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined tower and to the horizontal leg including first and second shaft with the first shaft being rotatable within the second shaft and being interconnected with the foils and the second shaft connected to the vertical leg and the generator as taught by Deering for the

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 58

purpose of positioning the airofils at a desired downstream configuration by rotating the generator about the vertical axis while allowing the foil and shaft rotation over the horizontal axis and consequently to turn the electric generator.

Paragraph 15, Office Action mailed June 27, 2003. Applicant submits that there is no suggestion or motivation for combining the Abe '434 patent with the Deering '655 patent as set forth in the Office Action because the Abe '434 patent already includes rotor blades 5 that can rotate about the vertical shaft 10. Accordingly, such a modification of the Abe '434 patent would not improve the Abe '434 patent because the invention disclosed in the Abe '434 patent already performs the function set forth as being motivation for combining the Abe '434 patent with the Deering '655 patent. Moreover, as illustrated in Fig. 2 of the Deering '655 patent, the wind turbine as disclosed in the '655 patent is very large (see person inside of the generator in Fig. 2). Therefore, if the shaft 202 and the spindle 210 were placed on the mount 12, the rope 14 would not be able to raise and lower such a huge object. In other words, the huge discrepancy in size between the wind turbine of the Abe '434 patent and the wind turbine of the '655 patent goes against any suggestion or motivation for combining the references. Accordingly, claim 36 is in condition for allowance.

Claim 37 depends from claim 36, and since claim 36 defines unobvious patentable subject matter as discussed above, claim 37 defines unobvious patentable subject matter.

Claim 42 depends from claim 39, and further defines the wind powered generator as including a vertical leg connected to the housing, wherein the housing is connected to an end of the vertical leg at a position off center from an axis of the vertical leg. The prior art of record does not disclose or suggest the above noted features of claim 42. First, claim 42 depends from claim 39 and since claim 39 defines patentable subject matter as discussed above, claim 42 defines patentable subject matter. Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to combine the reference teachings. According to the Office Action:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined tower and to the horizontal leg including first and second shaft with the first shaft being rotatable within the second shaft and being

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 59

interconnected with the foils and the second shaft connected to the vertical leg and the generator as taught by Deering for the purpose of positioning the airofils at a desired downstream configuration by rotating the generator about the vertical axis while allowing the foil and shaft rotation over the horizontal axis and consequently to turn the electric generator.

Paragraph 15, Office Action mailed June 27, 2003. Applicant submits that there is no suggestion or motivation for combining the Abe '434 patent with the Deering '655 patent as set forth in the Office Action because the Abe '434 patent already includes rotor blades 5 that can rotate about the vertical shaft 10. Accordingly, such a modification of the Abe '434 patent would not improve the Abe '434 patent because the invention disclosed in the Abe '434 patent already performs the function set forth as being motivation for combining the Abe '434 patent with the Deering '655 patent. Moreover, as illustrated in Fig. 2 of the Deering '655 patent, the wind turbine as disclosed in the '655 patent is very large (see person inside of the generator in Fig. 2). Therefore, if the shaft 202 and the spindle 210 were placed on the mount 12, the rope 14 would not be able to raise and lower such a huge object. In other words, the huge discrepancy in size between the wind turbine of the Abe '434 patent and the wind turbine of the '655 patent goes against any suggestion or motivation for combining the references. Accordingly, claim 42 is in condition for allowance.

Claim 43 depends from claim 42, and since claim 42 defines unobvious patentable subject matter as discussed above, claim 43 defines unobvious patentable subject matter.

Accordingly, claims 36, 37, 42 and 43 are allowable over the Ellwood, 2d., et al. '454 patent in view of U.S. Patent No. 5,584,655 to Deering, and the Board is requested to reverse the rejection of these claims.

Issue 9: Whether claim 51 is unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,584,655 to Deering and U.S. Patent No. 6,239,507 to Douthit?

Argument

In order to establish a *prima facie* case of obviousness, three criteria must be met.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 60

M.P.E.P. §706.02(j). Firstly, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Fine*, 5 U.S.P.Q.2d 1586 (Fed. Cir. 1988). Secondly, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Thirdly, the prior art reference (or references) must teach or suggest all the claim limitations. *In re Royka*, 180 U.S.P.Q. 550 (C.C.P.A. 1974). The burden is on the Examiner to create a prima facie case of obviousness, not on the Applicant to provide reasons for patentability. See *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Examiner has not created a prima facie case of obviousness to reject claim 51 over the Abe '434 patent in view of the Deering '655 patent and the Douthit '507 patent.

#### Discussion

Claim 51 depends from claim 44 and further defines the wind powered electrical generation system by stating that the carriage includes a plurality of contacts configured to contact a rotating portion of the first member to allow power to be transferred from a first member to a remote point.

The prior art of record does not disclose or suggest the claimed features of claim 51. First, claim 51 depends from claim 44, and since claim 44 defines unobvious patentable subject matter as discussed above, claim 51 defines unobvious patentable subject matter. Second, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. According to the Office Action:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the tower as taught by Abe and to provide the carriage including the plurality of contacts contacting the rotating portion of the wind powered generator as taught by Douthit for the purpose of transferring the current from the generator to external storage or transmission means while allowing unlimited and free rotation of the generation above a vertical axis.

Paragraph 9, Office Action mailed June 27, 2003. However, there is no suggestion or motivation for substituting the turntable 16 as disclosed in the Douthit '507 patent for the

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 61

mount 12 disclosed in the Abe '434 patent and/or the Deering '655 patent. Such a combination would not allow the necelle 2, rotor head 4 or rotor blades 5 of the Abe '434 patent and/or the Deering '655 patent to be raised or lowered because the turntable 16 as disclosed by the Douthit '507 patent could not move on the guides as disclosed by the Abe '434 patent and/or the Deering '655 patent. Therefore, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the Abe '434 patent and/or the Douthit '507 patent with the Douthit '507 patent as set forth in the final rejection of the claims. Accordingly, claim 51 is in condition for allowance.

Accordingly, claim 51 is allowable over the Abe '434 patent in view of the Deering '655 patent and the Douthit '507 patent, and the Board is requested to reverse the rejection of these claims.

Issue 10: Whether claim 57 is unpatentable over U.S. Patent No. 4,311,434 to Abe in view of U.S. Patent No. 5,244,346 to Fergusson?

Argument

In order to establish a *prima facie* case of obviousness, three criteria must be met. M.P.E.P. §706.02(j). Firstly, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Fine*, 5 U.S.P.Q.2d 1586 (Fed. Cir. 1988). Secondly, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Thirdly, the prior art reference (or references) must teach or suggest all the claim limitations. *In re Royka*, 180 U.S.P.Q. 550 (C.C.P.A. 1974). The burden is on the Examiner to create a *prima facie* case of obviousness, not on the Applicant to provide reasons for patentability. See *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Examiner has not created a *prima facie* case of obviousness to reject claim 57 over the Abe '434 patent in view of the Fergusson '346 patent.

Discussion

Claim 57 defines a portable wind powered generation system including, among other

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 62

things, a tower having an upper tower section and a lower tower section, with the upper tower section and the lower tower section being removably connected, a wind powered generator and an elevator connected to the tower, the elevator being able to move between the lower tower section and the upper tower section of the tower, wherein the wind powered generator is configured to be connected to the elevator to raise the wind powered generator from the lower tower section to the upper tower section and wherein the wind powered generator can be unconnected from the elevator and the upper tower section can be unconnected from the lower tower section, thereby allowing the portable wind powered generator assembly to be easily transported and erected.

The prior art of record does not disclose or suggest the above noted features of claim 57. According to the Office Action:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined tower and to provide the tower comprising the lower tower section and the upper tower section as taught by Douthit for the purpose of providing a self containing system that is easy to transport and to install at site without the need of providing an additional crane or other hauling means.

Paragraph 17, Office Action mailed June 27, 2003. The rejection of claim 57 is not a prima facie case of obviousness because the final Office Action apparently uses teachings from a third reference, the Douthit '507 patent, without explaining which features of the Douthit '507 patent are taught. Furthermore, the final Office Action did not provide any suggestion or motivation for combining the Fergusson '346 patent with the Abe '434 patent, or even a combination of the Abe '434 patent and the Fergusson '346 patent. Nevertheless, there is no reason to combine the Abe '434 patent with the Fergusson '346 patent because if such a combination was made, the nacelle 2 of the Abe '434 patent would not be able to be raised and lowered along the guides 1a of the tower 1. As illustrated in Figs. 6 and 7 of the Fergusson '346 patent, the periphery of the upper section 225 of the frame 213 telescopes into the lower section 223 of the frame 213. Furthermore, the periphery of the upper frame 225 is smaller than the periphery of the lower section 223. Therefore, any guides used on the tower 213 as disclosed by the Fergusson '346 patent would not be colinear as the upper section 225 moves

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 63

into the lower section 223. Therefore, if the guides 1a were not colinear, the mount 12 as disclosed in the Abe '434 patent would not be able to move up and down the frame. Accordingly, there is no suggestion or motivation for combining the Abe '434 patent and the Fergusson '346 patent.

In regard to the third criterion of obviousness, the prior art of record does not disclose or suggest the above noted features of claim 57. Specifically, even if there was a suggestion or motivation for combining the Abe '434 patent with the Fergusson '346 patent, the resulting combination would not include a tower having an upper tower section and a lower tower section removably connected. Furthermore, such a combination would not include a wind powered generator that can be unconnected from an elevator and a lower tower section that can be unconnected from an upper tower section. Accordingly, claim 57 is in condition for allowance.

Accordingly, claim 57 is allowable over the Abe '434 patent in view of the Fergusson '346 patent and the Board is requested to reverse the rejection of these claims.

## **IX. Conclusion**

Each appealed claim recites features that are not disclosed by any of the cited references and it would not have been obvious to modify the cited references to include the recited features of the appealed claims. The references upon which the Examiner relies in the Examiner's rejections of the finally rejected claims does not disclose or suggest the claimed pivot ring, upwind generator, tower, and cam surface and cam member as each individually claimed. Applicant's invention resolves problems and inconveniences experienced in the prior art, and therefore represents a significant advancement in the art. Applicant earnestly requests that the Examiner's final rejection of claims 9, 10, 15-19, 24-37, 39-45 and 50-57 inclusive, be reversed and that the application be passed to issuance forthwith.

Applicant : Steve Anderson Platt  
Appln. No. : 09/981,231  
Page : 64

Respectfully submitted,

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### **Appendix of Claims (37 CFR §1.192(c)(9))**

1. A portable wind powered generator tower for supporting a wind powered generator comprising:

a lower tower section including a first vertical column, a second vertical column and a third vertical column, the lower tower further including at least three cross braces, with two of the cross braces being connected to each of the first vertical column, the second vertical column and the third vertical column; and

an upper tower section including a first upper column, a second upper column and a third upper column, with the first upper column and the second upper column being substantially parallel and the third upper column converging towards the first upper column and the second upper column; and

an elevator configured to be connected to a wind powered generator to raise and lower the wind powered generator from the lower tower section to the upper tower section;

wherein the lower tower section is configured to be connected to the upper tower section by connecting a top of the first vertical column of the lower tower section directly below the upper tower section to a bottom of the first upper column of the upper tower section, connecting a top of the second vertical column of the lower tower section directly below the upper tower section to a bottom of the second upper column of the upper tower section, and connecting a top of the third vertical column of the lower tower section directly below the upper tower section to a bottom of the third upper column of the upper tower section; and

wherein the elevator is fully assembled and ready to raise and lower the wind powered generator when the lower tower section is connected to the upper tower section.

2. The portable wind powered generator tower of claim 1, wherein:

the elevator includes a vertical track and a carriage; and

the carriage is configured to move along the vertical track to raise and lower the wind powered generator.

3. The portable wind powered generator tower of claim 2, wherein:  
the vertical track includes a first side guide having a first vertical strip and a second side guide having a second vertical strip; and  
the carriage includes a first side groove configured to accept the first vertical strip and a second side groove configured to accept the second vertical strip, thereby allowing the carriage to slide along the first vertical strip and the second vertical strip of the vertical track.
4. The portable wind powered generator tower of claim 3, wherein:  
the first vertical strip is comprised of a plurality of first vertical strip portions;  
the second vertical strip is comprised of a plurality of second vertical strip portions;  
the first vertical column of the lower tower section includes one of the first vertical strip portions;  
the first upper column includes another one of the first vertical strip portions;  
the second vertical column of the one lower tower section includes one of the second vertical strip portions;  
the second upper column includes another one of the second vertical strip portions; and  
the first vertical strip and the second vertical strip are fully assembled when the at least one lower tower section is connected to the upper tower section.
5. The portable wind powered generator tower of claim 2, further including:  
a carriage raising assembly including a winch, a cable and a pulley;  
wherein the pulley is connected to the upper tower section and the winch is connected to the lower tower section; and  
wherein the cable is connected to the winch and the carriage, the cable further being wrapped about the pulley whereby the carriage can be raised by rotating the winch to thereby pull the cable about the pulley and raise the carriage.

6. The portable wind powered generator tower of claim 2, wherein:  
the carriage includes a pivot ring adapted to allow the wind powered generator to pivot about the carriage when the wind powered generator is located at a top of the upper tower section.
7. The portable wind powered generator tower of claim 6, wherein:  
the pivot ring includes a plurality of roller bearings configured to accept a portion of the wind powered generator thereon, thereby allowing the wind powered generator to rotate.
8. The portable wind powered generator tower of claim 2, wherein:  
the carriage includes a plurality of contacts configured to contact a rotating portion of the wind powered generator to allow power to be transferred from the wind powered generator to a remote point.
9. A wind powered generator support assembly for supporting a wind powered generator comprising:  
a tower; and  
a vertical elevator on the tower, the elevator including a track and a carriage configured to move along the track, the carriage including a pivot ring configured to accept the wind powered generator therein for allowing the wind powered generator to rotate about the carriage;  
wherein the vertical elevator is configured to vertically lift the wind powered generator with the carriage to position the wind powered generator at a top of the tower.
10. The wind powered generator support assembly of claim 9, wherein:  
the track includes a first side guide having a first vertical strip and a second side guide having a second vertical strip; and  
the carriage includes a first side groove configured to accept the first vertical strip and a

second side groove configured to accept the second vertical strip, thereby allowing the carriage to slide along the first vertical strip and the second vertical strip of the track.

11. A wind powered generator support assembly for supporting a wind powered generator comprising:

a tower; and

wherein the vertical elevator is configured to vertically lift the wind powered generator with the carriage to position the wind powered generator at a top of the tower;

the tower comprising a lower tower section and an upper tower section;

the lower tower section including a first vertical column, a second vertical column and a third vertical column, the lower tower section further including at least three cross braces, with two of the cross braces being connected to each of the first vertical column, the second vertical column and the third vertical column; and

the upper tower section including a first upper column, a second upper column and a third upper column, with the first upper column and the second upper column being substantially parallel and the third upper column converging towards the first upper column and the second upper column;

the lower tower section being configured to be connected to the upper tower section by connecting a top of the first vertical column of the lower tower section directly below the upper tower section to a bottom of the first upper column of the upper tower section, connecting a top of the second vertical column of the lower tower section directly below the upper tower section to a bottom of the second upper column of the upper tower section, and connecting a top of the third vertical column of the lower tower section directly below the upper tower section to a bottom of the third upper column of the upper tower section; and

the track being fully assembled and ready to raise and lower the wind powered generator when the lower tower section is connected to the upper tower section.

12. The wind powered generator support assembly of claim 11, wherein:  
the vertical track includes a first side guide having a first vertical strip and a second side guide having a second vertical strip; and  
the carriage includes a first side groove configured to accept the first vertical strip and a second side groove configured to accept the second vertical strip, thereby allowing the carriage to slide along the first vertical strip and the second vertical strip of the vertical track.
13. The wind powered generator support assembly of claim 12, wherein:  
the first vertical strip is comprised of a plurality of first vertical strip portions;  
the second vertical strip is comprised of a plurality of second vertical strip portions;  
the first vertical column of the lower tower section includes one of the first vertical strips;  
the first upper column includes one of the first vertical strips;  
the second vertical column of the one lower tower section includes one of the second vertical strips;  
the second upper column includes one of the second vertical strips; and  
the first vertical strip and the second vertical strip are fully assembled when the at least one lower tower section is connected to the upper tower section.
14. The wind powered generator support assembly of claim 13, further including:  
a carriage raising assembly including a winch, a cable and a pulley;  
wherein the pulley is connected to the upper tower section of the tower and the winch is connected to the lower tower section; and  
wherein the cable is connected to the winch and the carriage, the cable further being wrapped about the pulley whereby the carriage can be raised by rotating the winch to thereby pull the cable about the pulley and raise the carriage.

15. The wind powered generator support assembly of claim 9, wherein:  
the pivot ring includes a plurality of roller bearings configured to accept a portion of the wind powered generator thereon, thereby allowing the wind powered generator to rotate.
16. The wind powered generator support assembly of claim 9, wherein:  
the carriage includes a plurality of contacts configured to contact a rotating portion of the wind powered generator to allow power to be transferred from the wind powered generator to a remote point.
17. The wind powered generator support assembly of claim 9, further including:  
a carriage raising assembly including a winch, a cable and a pulley;  
wherein the pulley is connected to an upper portion of the tower and the winch is connected to a lower portion of the tower; and  
wherein the cable is connected to the winch and the carriage, the cable further being wrapped about the pulley whereby the carriage can be raised by rotating the winch to thereby pull the cable about the pulley and raise the carriage.
18. A wind powered electrical generation system comprising:  
a tower including a vertical elevator, the vertical elevator having a track and a carriage configured to move along the track; and  
a wind powered generator configured to be connected to the carriage, the wind powered generator including a plurality of airfoils and an electric generator;  
wherein the wind powered generator can be removably placed within the carriage after the tower has been erected and lifted vertically with the carriage to position the wind powered generator at a top of the tower; and  
wherein the wind powered generator can be removed from within the carriage after the carriage has been lowered.

19. The wind powered electrical generation system of claim 18, wherein:  
the track includes a first side guide having a first vertical strip and a second side guide having a second vertical strip; and  
the carriage includes a first side groove configured to accept the first vertical strip and a second side groove configured to accept the second vertical strip, thereby allowing the carriage to slide along the first vertical strip and the second vertical strip of the track.
20. A wind powered electrical generation system comprising:  
a tower including a vertical elevator, the vertical elevator having a track and a carriage configured to move along the track; and  
the tower comprising a lower tower section and an upper tower section;  
the lower tower section including a first vertical column, a second vertical column and a third vertical column, the lower tower section further including at least three cross braces, with two of the cross braces being connected to each of the first vertical column, the second vertical column and the third vertical column; and  
the upper tower section including a first upper column, a second upper column and a third upper column, with the first upper column and the second upper column being substantially parallel and the third upper column converging towards the first upper column and the second upper column;  
the lower tower section being configured to be connected to the upper tower section by connecting a top of the first vertical column of the lower tower section directly below the upper tower section to a bottom of the first upper column of the upper tower section, connecting a top of the second vertical column of the lower tower section directly below the upper tower section to a bottom of the second upper column of the upper tower section, and connecting a top of the third vertical column of the lower tower section directly below the upper tower section to a bottom of the third upper column of the upper tower section; and  
the track being fully assembled and ready to raise and lower the wind powered generator when the lower tower section is connected to the upper tower section.

21. The wind powered electrical generation system of claim 20, wherein:  
the vertical track includes a first side guide having a first vertical strip and a second side guide having a second vertical strip; and  
the carriage includes a first side groove configured to accept the first vertical strip and a second side groove configured to accept the second vertical strip, thereby allowing the carriage to slide along the first vertical strip and the second vertical strip of the vertical track.
22. The wind powered electrical generation system of claim 21, wherein:  
the first vertical strip is comprised of a plurality of first vertical strip portions;  
the second vertical strip is comprised of a plurality of second vertical strip portions;  
the first vertical column of the lower tower section includes one of the first vertical strips;  
the first upper column includes one of the first vertical strips;  
the second vertical column of the one lower tower section includes one of the second vertical strips;  
the second upper column includes one of the second vertical strips; and  
the first vertical strip and the second vertical strip are fully assembled when the at least one lower tower section is connected to the upper tower section.
23. The wind powered electrical generation system of claim 22, further including:  
a carriage raising assembly including a winch, a cable and a pulley;  
wherein the pulley is connected to the upper tower section and the winch is connected to the lower tower section; and  
wherein the cable is connected to the winch and the carriage, the cable further being wrapped about the pulley whereby the carriage can be raised by rotating the winch to thereby pull the cable about the pulley and raise the carriage.



24. The wind powered electrical generation system of claim 18, wherein:  
the carriage includes a pivot ring configured to accept the wind powered generator therein; and  
the pivot ring includes a plurality of roller bearings configured to accept a portion of the wind powered generator thereon, thereby allowing the wind powered generator to rotate.
25. The wind powered electrical generation system of claim 18, wherein:  
the carriage includes a plurality of contacts configured to contact a rotating portion of the wind powered generator to allow power to be transferred from the wind powered generator to a remote point.
26. The wind powered electrical generation system of claim 18, further including:  
a carriage raising assembly including a winch, a cable and a pulley;  
wherein the pulley is connected to an upper portion of the tower and the winch is connected to a lower portion of the tower; and  
wherein the cable is connected to the winch and the carriage, the cable further being wrapped about the pulley whereby the carriage can be raised by rotating the winch to thereby pull the cable about the pulley and raise the carriage.
27. The wind powered electrical generation system of claim 18, wherein:  
the wind powered generator further includes:  
a housing;  
a rod configured to rotate within the housing; and  
at least two spars connected to the rod and extending radially therefrom;  
wherein one of the airfoils is connected to each of the spars.
28. The wind powered electrical generation system of claim 27, wherein:  
the airfoils are configured to pivot about the spars and to slide longitudinally along the

spars;

the airfoils are biased towards a first end of the spars connected to the rod;  
each spar includes a cam member adjacent a second end of the spar opposite to the rod;  
each airfoil includes a cam surface configured to engage the cam member on the spar;  
the cam member and the cam surface are configured to engage to thereby rotate the  
airfoils relative to the spars as the airfoils move along the spars towards the second end of the  
spars.

29. The wind powered electrical generation system of claim 18, wherein:

the wind powered generator includes a vertical leg;  
the vertical leg is configured to be placed within the carriage and rotate relative to the  
carriage when the wind powered generator is placed within the carriage.

30. The wind powered electrical generation system of claim 29, wherein:

the wind powered generator further includes a horizontal leg including a first shaft and  
a second shaft, the first shaft being rotatable within the second shaft;  
the second shaft of the horizontal leg is connected to an end of the vertical leg;  
the airfoils are interconnected to the first shaft; and  
the generator is connected to the second shaft.

31. The wind powered electrical generation system of claim 30, wherein:

the second shaft of the horizontal leg is connected to an end of the vertical leg at a  
position off center from an axis of the vertical leg.

32. The wind powered electrical generation system of claim 31, wherein:

the first shaft includes a hub fixed to an end thereof; and  
spars are connected to the hub, the spars extending from the hub in a position  
substantially perpendicular to the first shaft.

33. The wind powered electrical generation system of claim 32, wherein:  
the airfoils are configured to pivot about the spars and to slide longitudinally along the spars;  
the airfoils are biased towards a first end of the spars connected to the hub;  
each spar includes a cam member adjacent a second end of the spar opposite to the hub;  
each airfoil includes a cam surface configured to engage the cam member on the spar;  
the cam member and the cam surface are configured to engage to thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.
34. A wind powered generator comprising:  
a housing;  
a rod configured to rotate within the housing;  
at least two spars connected to a hub on the rod and extending radially therefrom;  
an airfoil connected to each of the spars at a location distal the rod;  
the airfoils being configured to pivot about the spars and to slide longitudinally along the spars;  
the airfoils being biased towards a first end of the spars connected to the hub;  
each spar including a cam member adjacent a second end of the spar opposite to the hub; and  
each airfoil including a cam surface configured to engage the cam member on the spar;  
wherein the cam member and the cam surface are configured to engage to thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.
35. The wind powered generator of claim 34, further including:  
an electrical generator connected to the housing.

36. The wind powered generator of claim 35, further including:  
a vertical leg connected to the housing;  
wherein the housing is connected to an end of the vertical leg at a position off center from an axis of the vertical leg.
37. The wind powered generator of claim 34, wherein:  
the rod includes a hub fixed to an end thereof; and  
the spars are connected to the hub, with the spars extending from the hub in a position substantially perpendicular to the rod.
38. (canceled)
39. A wind powered generator comprising:  
a housing;  
a rod configured to rotate within the housing;  
at least six spars connected to the rod and extending radially therefrom;  
an airfoil connected to each of the spars at a location distal the rod; and  
a generator located upwind of the spars and interconnected to the rod;  
wherein the spars and the rod will rotate as wind passes the airfoils, thereby powering the generator.
40. The wind powered generator of claim 39, wherein:  
the airfoils are configured to pivot about the spars and to slide longitudinally along the spars;  
the airfoils are biased towards a first end of the spars connected to the hub;  
each spar includes a cam member adjacent a second end of the spar opposite to the hub;  
each airfoil includes a cam surface configured to engage the cam member on the spar;  
and

the cam member and the cam surface are configured to engage to thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.

41. The wind powered generator of claim 39, further including:  
an electrical generator connected to the housing.
42. The wind powered generator of claim 39, further including:  
a vertical leg connected to the housing;  
wherein the housing is connected to an end of the vertical leg at a position off center from an axis of the vertical leg.
43. The wind powered generator of claim 39, wherein:  
the rod includes a hub fixed to an end thereof; and  
the spars are connected to the hub, with the spars extending from the hub in a position substantially perpendicular to the rod.
44. A wind powered electrical generation system comprising:  
a tower including an elevator having a carriage, the elevator being configured to move the carriage between a bottom and a top of the tower;  
a first member rotatably connected to the carriage, the first member having an axis of rotation substantially parallel to the direction of movement of the carriage;  
a second member connected to the first member, the second member having a first end and a second end;  
a hub assembly connected to the first end of the second member, the hub assembly including a plurality of spars;  
an airfoil connected to each spar; and  
a generator connected to the second end of the second member;

wherein the spars and the second member will rotate as wind passes the airfoils, thereby powering the generator.

45. The wind powered electrical generation system of claim 44, wherein:

the elevator includes a track, the track including a first side guide having a first vertical strip and a second side guide having a second vertical strip; and

the carriage includes a first side groove configured to accept the first vertical strip and a second side groove configured to accept the second vertical strip, thereby allowing the carriage to slide along the first vertical strip and the second vertical strip of the track to move between the top and bottom of the tower.

46. A wind powered electrical generation system comprising:

a tower including an elevator having a carriage, the elevator being configured to move the carriage between a bottom and a top of the tower;

a first member rotatably connected to the carriage, the first member having an axis of rotation substantially parallel to the direction of movement of the carriage;

a second member connected to the first member, the second member having a first end and a second end;

a hub assembly connected to the first end of the second member, the hub assembly including a plurality of spars;

an airfoil connected to each spar; and

a generator connected to the second end of the second member;

wherein the spars and the second member will rotate as wind passes the airfoils, thereby powering the generator;

the tower comprising a lower tower section and an upper tower section;

the lower tower section including a first vertical column, a second vertical column and a third vertical column, the lower tower section further including at least three cross braces, with two of the cross braces being connected to each of the first vertical column, the second

vertical column and the third vertical column; and

the upper tower section including a first upper column, a second upper column and a third upper column, with the first upper column and the second upper column being substantially parallel and the third upper column converging towards the first upper column and the second upper column;

the lower tower section being configured to be connected to the upper tower section by connecting a top of the first vertical column of the lower tower section directly below the upper tower section to a bottom of the first upper column of the upper tower section, connecting a top of the second vertical column of the lower tower section directly below the upper tower section to a bottom of the second upper column of the upper tower section, and connecting a top of the third vertical column of the lower tower section directly below the upper tower section to a bottom of the third upper column of the upper tower section;

the elevator including a track upon which the carriage moves; and

the track being fully assembled and ready to raise and lower the wind powered generator when the lower tower section is connected to the upper tower section.

47. The wind powered electrical generation system of claim 46, wherein:

the track includes a first side guide having a first vertical strip and a second side guide having a second vertical strip; and

the carriage includes a first side groove configured to accept the first vertical strip and a second side groove configured to accept the second vertical strip, thereby allowing the carriage to slide along the first vertical strip and the second vertical strip of the track.

48. The wind powered electrical generation system of claim 47, wherein:

the first vertical strip is comprised of a plurality of first vertical strip portions;

the second vertical strip is comprised of a plurality of second vertical strip portions;

the first vertical column of the lower tower section includes one of the first vertical strips;

the first upper column includes one of the first vertical strips;  
the second vertical column of the one lower tower section includes one of the second vertical strips;  
the second upper column includes one of the second vertical strips; and  
the first vertical strip and the second vertical strip are fully assembled when the at least one lower tower section is connected to the upper tower section.

49. The wind powered electrical generation system of claim 48, further including:  
a carriage raising assembly including a winch, a cable and a pulley;  
wherein the pulley is connected to the upper tower section and the winch is connected to the lower tower section; and

wherein the cable is connected to the winch and the carriage, the cable further being wrapped about the pulley whereby the carriage can be raised by rotating the winch to thereby pull the cable about the pulley and raise the carriage.

50. The wind powered electrical generation system of claim 44, wherein:  
the carriage includes a pivot ring having a plurality of roller bearings configured to accept the first member thereon, thereby allowing the first member to rotate.

51. The wind powered electrical generation system of claim 44, wherein:  
the carriage includes a plurality of contacts configured to contact a rotating portion of the first member to allow power to be transferred from the first member to a remote point.

52. The wind powered electrical generation system of claim 44, further including:  
a carriage raising assembly including a winch, a cable and a pulley;  
wherein the pulley is connected to an upper portion of the tower and the winch is connected to a lower portion of the tower; and  
wherein the cable is connected to the winch and the carriage, the cable further being



wrapped about the pulley whereby the carriage can be raised by rotating the winch to thereby pull the cable about the pulley and raise the carriage.

53. The wind powered electrical generation system of claim 44, wherein:  
the airfoils are configured to pivot about the spars and to slide longitudinally along the spars;  
the airfoils are biased towards a first end of the spars connected to the hub;  
each spar includes a cam member adjacent a second end of the spar opposite to the hub;  
each airfoil includes a cam surface configured to engage the cam member on the spar;  
the cam member and the cam surface are configured to engage to thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.
54. The wind powered electrical generation system of claim 44, wherein:  
the second member is connected to an end of the first member at a position off center from an axis of the first member.
55. The wind powered electrical generation system of claim 54, wherein:  
the spars extend from the hub in a position substantially perpendicular to the second member.
56. The wind powered electrical generation system of claim 55, wherein:  
the airfoils are configured to pivot about the spars and to slide longitudinally along the spars;  
the airfoils are biased towards a first end of the spars connected to the hub;  
each spar includes a cam member adjacent a second end of the spar opposite to the hub;  
each airfoil includes a cam surface configured to engage the cam member on the spar;  
the cam member and the cam surface are configured to engage to thereby rotate the

airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.

57. A portable wind powered generation system comprising:

a tower having an upper tower section and a lower tower section, the upper tower section and the lower tower section being removably connected;

a wind powered generator; and

an elevator connected to the tower, the elevator being able to move between the lower tower section and the upper tower section of the tower;

wherein the wind powered generator is configured to be connected to the elevator to raise the wind powered generator from the lower tower section to the upper tower section; and

wherein the wind powered generator can be unconnected from the elevator and the upper tower section can be unconnected from the lower tower section, thereby allowing the portable wind powered generator assembly to be easily transported and erected.

58. A portable wind powered generation system comprising:

a tower having an upper tower section and a lower tower section, the upper tower section and the lower tower section being removably connected;

a wind powered generator; and

an elevator connected to the tower, the elevator being able to move between the lower tower section and the upper tower section of the tower;

wherein the wind powered generator is configured to be connected to the elevator to raise the wind powered generator from the lower tower section to the upper tower section; and

wherein the wind powered generator can be unconnected from the elevator and the upper tower section can be unconnected from the lower tower section, thereby allowing the portable wind powered generator assembly to be easily transported and erected;

the lower tower section including a first vertical column, a second vertical column and a third vertical column, the lower tower section further including at least three cross braces,

with two of the cross braces being connected to each of the first vertical column, the second vertical column and the third vertical column; and

the upper tower section including a first upper column, a second upper column and a third upper column, with the first upper column and the second upper column being substantially parallel and the third upper column converging towards the first upper column and the second upper column;

the lower tower section being configured to be connected to the upper tower section by connecting a top of the first vertical column of the lower tower section directly below the upper tower section to a bottom of the first upper column of the upper tower section, connecting a top of the second vertical column of the lower tower section directly below the upper tower section to a bottom of the second upper column of the upper tower section, and connecting a top of the third vertical column of the lower tower section directly below the upper tower section to a bottom of the third upper column of the upper tower section;

the elevator including a carriage and a track upon which the carriage moves; and

the track being fully assembled and ready to raise and lower the wind powered generator when the one lower tower section is connected to the upper tower section.

59. The wind powered electrical generation system of claim 58, wherein:

the vertical track includes a first side guide having a first vertical strip and a second side guide having a second vertical strip; and

the carriage includes a first side groove configured to accept the first vertical strip and a second side groove configured to accept the second vertical strip, thereby allowing the carriage to slide along the first vertical strip and the second vertical strip of the vertical track.

60. The wind powered electrical generation system of claim 59, wherein:

the first vertical strip is comprised of a plurality of first vertical strip portions;

the second vertical strip is comprised of a plurality of second vertical strip portions;

the first vertical column of the lower tower section includes one of the first vertical

strips;

the first upper column includes one of the first vertical strips;

the second vertical column of the one lower tower section includes one of the second vertical strips;

the second upper column includes one of the second vertical strips; and

the first vertical strip and the second vertical strip are fully assembled when the at least one lower tower section is connected to the upper tower section.

61. The wind powered electrical generation system of claim 60, further including:

a carriage raising assembly including a winch, a cable and a pulley;

wherein the pulley is connected to the upper tower section and the winch is connected to the lower tower section; and

wherein the cable is connected to the winch and the carriage, the cable further being wrapped about the pulley whereby the carriage can be raised by rotating the winch to thereby pull the cable about the pulley and raise the carriage.

62. The wind powered electrical generation system of claim 61, wherein:

the carriage includes a pivot ring having a plurality of roller bearings configured to accept a portion of the wind powered generator thereon, thereby allowing the wind powered generator to rotate.

63. The wind powered electrical generation system of claim 62, wherein:

the carriage includes a plurality of contacts configured to contact a rotating portion of the wind powered generator to allow power to be transferred from the wind powered generator to a remote point.

64. The wind powered electrical generation system of claim 63, wherein:

the wind powered generator includes:

a housing;  
a rod configured to rotate within the housing;  
at least two spars connected to the rod and extending radially therefrom; and  
the airfoils are connected to each of the spars.

65. The wind powered electrical generation system of claim 64, wherein:  
the airfoils are configured to pivot about the spars and to slide longitudinally along the spars;  
the airfoils are biased towards a first end of the spars connected to the hub;  
each spar includes a cam member adjacent a second end of the spar opposite to the hub;  
each airfoil includes a cam surface configured to engage the cam member on the spar;  
the cam member and the cam surface are configured to engage to thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.
66. The wind powered electrical generation system of claim 65, wherein:  
the wind powered generator further includes a vertical leg;  
the vertical leg is configured to be placed within the carriage and rotate relative to the carriage when the wind powered generator assembly is placed within the carriage.
67. The wind powered electrical generation system of claim 66, wherein:  
the wind powered generator further includes a horizontal leg including a first shaft and a second shaft, the first shaft being rotatable within the second shaft;  
the second shaft of the horizontal leg is connected to an end of the vertical leg;  
the airfoils are interconnected to the first shaft; and  
the generator is connected to the second shaft.

68. The wind powered electrical generation system of claim 67, wherein:  
the second shaft of the horizontal leg is connected to an end of the first rod of the vertical leg at a position off center from an axis of the vertical leg.
69. The wind powered electrical generation system of claim 68, wherein:  
the first shaft includes a hub fixed to an end thereof; and  
spars are connected to the hub, the spars extending from the hub in a position substantially perpendicular to the first shaft.
70. The wind powered electrical generation system of claim 69, wherein:  
the airfoils are configured to pivot about the spars and to slide longitudinally along the spars;  
the airfoils are biased towards a first end of the spars connected to the hub;  
each spar includes a cam member adjacent a second end of the spar opposite to the hub;  
each airfoil includes a cam surface configured to engage the cam member on the spar;  
the cam member and the cam surface are configured to engage to thereby rotate the airfoils relative to the spars as the airfoils move along the spars towards the second end of the spars.